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RELOCATION INSTRUCTIONS

GOVERNMENT DOCUMENTS COLLECTION
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federal emergency management agency

DRAFT

LOWELL RISK AREA

- ***WHO WILL BE EVACUATED***
- ***WHERE YOU WILL BE RELOCATED***
- ***HOW TO GET THERE***
- ***WHAT TO TAKE***
- ***WHAT TO DO WHEN YOU ARRIVE***
- ***FACTS ABOUT A NUCLEAR EXPLOSION***
- ***HOW TO PROTECT YOU & YOUR FAMILY***

IMPORTANT NOTICE

This information is being published at the request of government officials of the State of Massachusetts because a serious international crisis exists. If the situation becomes more serious, it may be necessary for the citizens of the Lowell Risk Area to move to a safer location.

The decision to evacuate the area will be carefully considered. Evacuation will be directed only if there appears to be a real possibility of a nuclear attack. In such a case, evacuation may be the key to survival for you and your family.

You will be officially notified by radio and TV if evacuation is directed. Stay tuned to your local stations. In the meantime, you are urged to prepare for the possibility that you may have to leave the area for a safer location.

It is important for you to read the following information very carefully. It contains instructions and directions that you will need during this crisis period. Make sure that you and your family understand all these instructions.

This information is your key to survival

READ IT.....KEEP IT

WHY YOU SHOULD EVACUATE

The Lowell Risk Area could be a potential target if the United States is attacked. The area where the greatest danger may exist is shown on the map below. To protect the people living in this area, plans have been made to relocate them to nearby areas which are considered to be safer from direct attack.

Those living in this risk area who do not leave accordingly to instructions will be subject to strictly enforced curfews. Movement within the risk area will be severely restricted to protect the property of those who have evacuated. In addition, most facilities or services cannot be provided in the risk area during the evacuation period. In general, food and goods will be used to supply the evacuated population in the reception areas.

Should an attack occur, the best existing shelter within the risk area will be reserved for key workers who will be working in essential industries, and for hospitalized or instituticnalized people who cannot be evacuated.

WHO WILL GO

When OFFICIAL NOTIFICATION is given, all those living in the vicinity of the Lowell Risk Area, who are in the risk area shown on the map below, will be directed to evacuate* to reception areas in nearby counties -- that is, from a place of possible danger to a place of safety.

You can determine whether you should evacuate by locating where you live on the map. If it is within the risk area, you should be prepared to leave if notification is given. Two days or possibly more should be available to complete the evacuation. However, you should prepare now so that you can get ready to leave in an orderly manner, if notification of evacuation is given.

* Shift workers may be told to stay on their job until the end of their shift.

IF YOU ARE IN A HOSPITAL...

Most hospital patients will be evacuated. However, if it is impossible for you to be moved because of special care requirements, you will be cared for during the evacuation period. Similar consideration will be given to those residing in other institutions. Shelter and care will be provided in case of an imminent attack.

RISK AREA MAP

CHECK TO SEE IF YOU LIVE IN RISK AREA

IF YOU LIVE IN THIS AREA
SEE ROUTE AND DESTINATION CHART

WHERE TO GO

- ***If You Have A Vacation Cabin, Relatives, Friends ...***

As the crisis intensifies and evacuation appears imminent, if you have a vacation cabin or friends or relatives outside the risk area, but within a reasonable distance, GO THERE as soon as possible to get to the location of your choice.

- ***If You Do Not Have A Definite Location To Go To ...***

You should proceed to the nearest reception area indicated for you on the route and destination chart. These assignments are based on the city or town in which you reside.

- ***If You Are A Key Worker ...***

If you have been designated by your employer as a key worker in an essential industry, you will be expected to evacuate with your family in a reserved nearby reception area. You will not be expected to stay in the Lowell Risk Area, but will commute daily to work from your assigned reception area. Protection will be provided for you while in the Lowell Risk Area, and you will be able to join your family after work.

WHAT TO DO WHEN YOU ARRIVE

Your assignment to a host reception community is explained in detail on section entitled "How to Determine Your Assigned Route and Destination." When you reach your assigned or host reception community, follow your signs at off-ramps or along the routes which will direct you to the temporary reception or congregate care centers.

At the centers, you will register yourself and your family. Local officials will assign temporary lodging and you will be given further instructions.

Lodging in Public Buildings ...

If you are assigned to a public buildings, such as, a school, church, or other temporary lodging center, do everything you can to help maintain order and sanitary living conditions. Elect a leader and form working groups to help local officials and volunteers with such tasks as:

* Cooking and feeding services
* Providing water supply
* Cleaning up trash and garbage
* Maintaining order
* Assuring quiet during sleeping hours
* Organizing recreation and religious activities
* Arranging medical care for the sick and assisting the handicapped

Lodging in a Private Home ...

If you are invited into a private home, be considerate and do your share to help your host. Remember that you are a guest and that your host has volunteered to share his home with you. You will be expected to treat his home and property with respect.

Use of Private Cars ...

Do not count on using your car in the host reception area except for storing your belongings. Evacuees' cars may be held in parking areas by local authorities, and gasoline will be scarce in any case.

HOW TO KEEP INFORMED

Listen to the radio for information and advice from national, State, and local officials. You will be told when you should return home. DO NOT RETURN HOME BEFORE YOU ARE ADVISED TO DO SO. It is impossible to predict how long you will have to stay in the host reception area. It could be only a few days or could last for a week or more.

If a nuclear attack should occur and the Emergency Broadcasting System (EBS) is in operation, a number of radio broadcast stations will remain on the air to provide emergency information. All other radio stations will stop broadcasting. Those emergency stations remaining on the air will provide you with information and instructions that you will need.

WHAT TO TAKE

You should prepare to take only those things which are deemed necessary for a stay of a week or more. See "Survival Supplies." This check list includes items you will need for your stay in the host reception area. Do not take all your favorite belongings.

All items on the checklist should be taken if you are going to use your own car for transportation. If you do not have a car and will be using another form of transportation, take only those items which can be carried in a suitcase such as those marked with an asterisk on the checklist.

PETS

No arrangements have been made to house pets in the reception area. Therefore, if you take your pet with you, it will probably be confined to your car and you will be responsible for its care. If you elect to leave your pets behind, be sure they are confined in a sheltered area with an adequate supply of food and water. Above all, do not turn your pet loose to fend for itself while you are gone.

PREPARE!

Here are some things you can do right now that will better prepare you and your family to survive and recover if a nuclear attack should occur.

1. Check to see if you live in the risk area.

2. Look up your host reception area assignment and familiarize yourself with the highway route assigned to you.

3. Go over the checklist of things to take with you. If you will need e prescription medicine or special food, check to see if you have an ample supply.

4. Collect all of your valuable pepers and put them in one place, preferably wrapped in plastic in a metal container (tool box, fishing tackle box, etc.).

5. Check your home for security. See that all locks are secure. Store valuables in a safe place.

6. If you will use your car, be sure you have enough gas.

7. Be sure to take tools--especially SHOVELS, PICKS, HAMMERS. These will be essential in improvising a fallout shelter.

8. Stay tuned to your local TV radio station for instructions. They will broadcast the notice to evacuate, if directed by government officials.

9. Read this supplement carefully and discuss it with your family. If you do not understand any of these directions, CALL

Acton	- 273-0600	Littleton	- 4B6-3120
Ayer	- 722-5713	Lowell	- 454-8821
Billerica	- 663-3464	Pepperell	- 433-6752
Boxborough	- 263-4621	Shirley	- 425-4538
Carlisle	- 369-2242	Harvard	- 456-8427
Chelmsford	- 256-6151	Westford	- 692-8671
Dracut	- 957-3797	Tyngsborough	- 649-7713
Dunstable	- 649-6107	Wilmington	- 658-6232
Groton	- 692-7713	Tewksbury	- 851-6740

SURVIVAL SUPPLIES

CLOTHING AND BEDDING

- ☐ ★ work gloves
- ☐ ★ work clothas
- ☐ ★ axtre underclothing
- ☐ ★ outerweer (dapending on saeson)
- ☐ ★ rein germant
- ☐ ★ extra pair of shoes
- ☐ ★ axtra socks or stockings
- ☐ sleeping bags end/or
- ☐ blankets and shaats

FOOD AND UTENSILS

- ☐ Taka all the food you can carry (particularly cannad or driad food requiring little praparation
- ☐ wetar
- ☐ thermos jug or plastic bottles
- ☐ bottla and can opener
- ☐ eating utansils
- ☐ plastic or paper plates, cups, and napkins pan
- ☐ plastic and paper bags
- ☐ ★ candles end matches
- ☐ plastic drop cloth

PERSONAL, SAFETY, SANITATION, AND MEDICAL SUPPLIES

- ☐ ★ battary operated (trensistor)
- ☐ ★ radios, axtra battaries
- ☐ ★ flashlight, axtre battarias
- ☐ ★ soep
- ☐ ★ toothbrush & toothpaste
- ☐ ★ shaving articlas
- ☐ ★ sanitary napkins
- ☐ ★ datargant
- ☐ ★ towels and washcloths
- ☐ toilet paper
- ☐ emargency toilat
- ☐ carbage can
- ☐ newspapers
- ☐ first eid kit
- ☐ ★ special medication (insulin, heart tablets, or other)

DO NOT TAKE

- ☐ **FIREARMS (Guns of any kind)**
- ☐ **NARCOTICS**
- ☐ **ALCOHOLIC BEVERAGES**

TOOLS FOR CONSTRUCTING A FALLOUT SHELTER

- ☐ pick ax
- ☐ shoval
- ☐ saw
- ☐ hemmar
- ☐ ax
- ☐ crowbar
- ☐ nails and scraws
- ☐ screw drivar
- ☐ wrench

IMPORTANT PAPERS

- ☐ ★ Social Security card
- ☐ ★ deeds
- ☐ ★ insurance policies
- ☐ ★ stocks and bonds
- ☐ ★ will
- ☐ ★ savinga account books
- ☐ ★ credit cards, checks, and currancy

BABY SUPPLIES

- ☐ ★ diapers
- ☐ ★ bottlas and nipplas
- ☐ ★ milk or formula
- ☐ ★ powder
- ☐ ★ rubber sheeting, etc.

**Items to take if you use Public Transportation*

FACTS ABOUT A NUCLEAR EXPLOSION

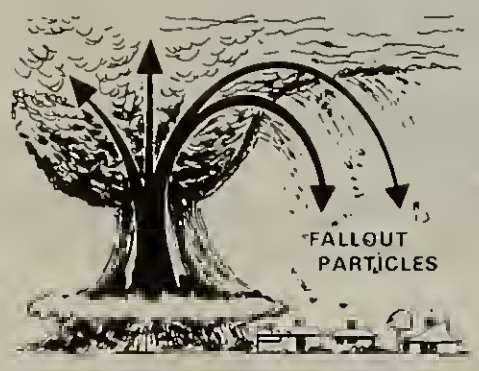
If you are in an unprotected area near where a nuclear weapon explodes, you could not survive the effects of the blast and heat generated by the explosion. After the explosion, the major danger is from radiation sickness caused by radioactive fallout. This fallout can endanger the life and health of people outside the high risk area. However, protective measures can be taken to safeguard you and your family from the effects of nuclear fallout.

This section describes what fallout is and how to protect yourself against its effects.

WHAT CAUSES FALLOUT. . .

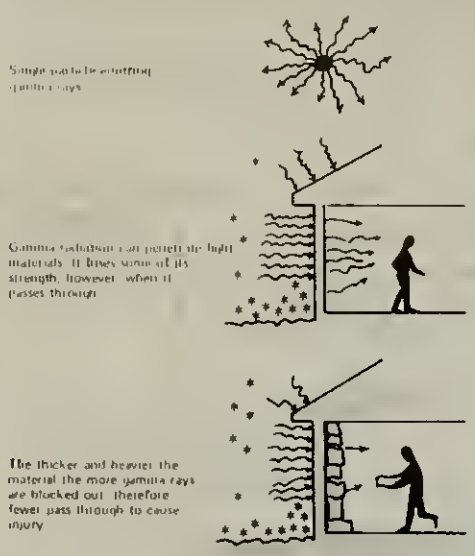
When a nuclear weapon explodes, great quantities of earth and other debris are sucked up into a nuclear cloud. The bits and particles of earth are mixed with the radioactive materials produced by the explosion and become "radioactive."

Within a short time, these fallout particles drift back to earth. Carried by the wind, they can spread over a large area far from the explosion site.



The particles may look like fine grains of sand, but the gamma rays they give off cannot be seen. (Special instruments are required to detect the rays and measure their intensity.) The particles can be swept, brushed, or washed off.

The gamma rays can pass through light materials. A considerable thickness of heavy material is required to stop the penetration of these rays.


Single particle emitting gamma rays
Gamma radiation can penetrate light materials. It loses some of its strength, however, when it passes through.
The thicker and heavier the material the more gamma rays are blocked out; therefore fewer pass through to cause injury.

The important points to remember about the danger of fallout are:

- You cannot see the gamma rays given off by fallout particles.
- Gamma radiation can penetrate light materials; therefore, heavy clothing alone will not protect you from these rays. If fallout particles should get on your skin, they should be brushed off to avoid skin burns.
- Radiation is more dangerous to very young, very old or sick people than to those in good health.
- A large dose of radiation received in a short period is more damaging than smaller doses received over a longer period.
- Radiation sickness is not contagious and cannot be passed from one person to another.

HOW TO PROTECT AGAINST FALLOUT

Radiation loses its strength

- With the passage of time
- As it passes through materials
- As the distance from the particle is increased

The best protection is to surround yourself with heavy materials. A fallout shelter will give you this kind of protection.

A fallout shelter does not need to be a special type of building. Any building will provide some level of protection. If the walls and roof are thick or heavy enough to absorb many of the rays given off by the particles outside, then better protection can be obtained. Even caves and mines can provide protection.

The key fact to remember is the farther you are from radioactive fallout particles, the safer you are from radiation. For example, you have more protection in a basement than on the top floor of a building. Likewise, there is more protection in an inner corridor of an above-grade structure than near an outside wall.

WHO WILL NEED FALLOUT PROTECTION

There is no way of predicting in advance where or how soon fallout will settle to the ground. This depends on the weather and on the direction and speed of the winds.

Areas close to a nuclear explosion might receive fallout within 20 or 30 minutes. Depending on the winds, it may take 5 to 10 hours for particles to drift down on communities 100 miles or more from the explosion.

The heavier particles giving off the most intense radiation will fall first. The lighter particles falling later will have lost much of the radiation high in the atmosphere. The first 24 hours after the fallout begins to settle are the most dangerous. The radiation from the particles loses its strength over time. The longer you are in a shelter, the lower the outside radiation levels will be when you emerge.

After a nuclear attack, dangerous levels of fallout COULD occur any place in the United States. Everyone, therefore, must have protection in case fallout occurs in his community.

WHY FALLOUT IS DANGEROUS. . .

The gamma rays given off by radioactive fallout particles can cause physical and chemical changes in the cells of the body, causing radiation sickness. No special clothing can protect you from the rays and there is no known drug or chemical that can prevent radiation from damaging the cells of the body. Large doses of radiation will cause death. But if you receive small or medium doses, the body will repair itself and you will get well.

The amount of gamma radiation that you can tolerate depends on a number of factors. The effects of radiation are more severe in very young or very old persons and those not in good health. Also, a single large dose received in a short period of time is more damaging than the same dose received over a longer period. People exposed to radiation DO NOT BECOME RADIOACTIVE and consequently are not dangerous to other people. Radiation sickness is NOT contagious and one person cannot infect another.

HOW TO PROVIDE FALLOUT SHELTER

Many larger buildings have been designated as public fallout shelters. They are marked by signs like this.

However, most public shelters are in larger cities and may be needed by essential workers or those who cannot be relocated. Those counties which serve as hosting areas usually do not have enough shelters for their own residents. Consequently, it will be necessary for many residents of host counties—AND FOR MOST CITY EVACUEES—to upgrade the protection in the building they are to stay in or to improvise their own fallout protection.

Both the residents of the host areas and the city evacuees will have to *WORK HARD FOR A DAY OR MORE* to construct improvised shelters to protect against fallout. In this case, radiation protection would be "cheap as dirt." Upgrading existing structures by piling earth outside them can be done by adding an average of one cubic yard of earth for each 10 square feet of shelter space to be developed (more for some buildings, less for others). Moving a cubic yard of earth is not easy—it's about 80 to 100 buckets full—but can be done if everyone works for their survival.

Shelter in host areas can be found in the following:

- Buildings which have been identified in the National Shelter Survey and marked with a shelter sign.
- Home basements.
- Other buildings which can be upgraded to improve the fallout protection by placing earth overhead and against the walls.
- Caves, mines, and tunnels.
- Expedient fallout shelters involving digging of trenches, movement of earth, or use of materials at hand, such as tables, doors, bricks, or books.

HOW TO GET THERE

If you have a car, truck, camper or recreation vehicle, drive it to your designated host reception area, using the route shown for your community on the Route and Destination Chart below. Remember that several days should be available for evacuating all those living in the risk area. Take the time you need to prepare and pack.

An evacuation route is assigned for each community in the risk area. Routes have been designated to assure that the Lowell Risk Area residents will be equally distributed among the host reception areas so that there will be adequate food and lodging for you and your family. If you use a route not assigned to you, you may find the host reception area you have chosen is filled and there is no room for accommodations for you. Follow the evacuation route to the host reception area as indicated for your city or town. Wherever possible, police officers will be on duty to advise you and direct you. Obey all instructions by law enforcement officers.

If you get caught in a traffic jam, turn off your engine, remain in your car, listen for official instructions, and be patient. Do not get out of line to find an alternate route. All routes will be crowded. If traffic is stopped, do not leave your car for any reason.

Be sure you have adequate gasoline when you start out. OO NOT BUY MORE GAS THAN YOU WILL NEEO. Gasoline will be in short supply and will be needed to provide you with food and other essential supplies. But, if you run out of gas or have other mechanical difficulties, move your car to the side of the road out of the traffic lanes to allow traffic to continue. Service to stalled autos will be available during the evacuation period. Leave your hood up as a sign that you are stalled, and you will be assisted as soon as possible.

IF YOU HAVE NO MEANS OF TRANSPORTATION

If you have no private means of transportation, go to the nearest neighborhood school. Goverment authorities will provide transportation to move you to your host reception area.

IF YOU ARE DISABLED

If you are physically unable to get to the schools for transportation, you can make arrangements to be picked up and be transported to your host reception area. Call your local Civil Defense Office.

HOW TO DETERMINE YOUR ROUTE AND DESTINATION

A separate map for each designated route is given on the following pages. Each of these maps have been highlighted to show only the assigned highways and host reception areas.

Some of the host communities closest to the risk areas have been reserved for key workers. These people will commute to and from these host reception areas to maintain vital services during the crisis period. If you are in an essential industry and your employer has designated you a key worker, you will evacuate your family to one of the reserved host areas.

If your community appeared on the Risk Map on Page 2, look up your community on the following Route and Destination Chart to locate your designated host community and route. Read across to find the host reception center(s) and route assigned to your city or town.

You will notice that some routes have several host reception areas listed. This is because the nearest host areas will fill up first as evacuation gets underway. Therefore, if the first host reception area is full, you will proceed on to the next area until you arrive at a location that can accommodate you. You will be notified that the host reception area is already filled either by signs along the highway or by local officials directing traffic onward. When you register at the first available host reception area, you will be assigned to a place to stay.

ROUTE AND DESTINATION CHART

COMMUNITIES AT RISK	HOST COMMUNITIES	ROUTE DESCRIPTION	ROUTE MAP/PAGE
Acton	Keene, N. H.	Route 2 to 202 to 68 to 32 into Keene, N. H.	8
Ayer	Haverhill, N. H.	Route 110 to 93 to 25 to Haverhill, New Hampshire	9
Billerica	Littleton, N. H.	Route 129 to 38 to 495 to 93 to Littleton, N. H.	9
Boxborough	Keene, N. H.	Route 2 to 202 to 68 to 32 into Keene, N. H.	8
Carlisle	Haverhill, N. H.	Route 225 to 128 to 93 to 25 to Haverhill, N. H.	11
Chelmsford	Claremont, N. H.	Route 495 to 93 to 89 to 103 to Claremont, N. H.	10
Dracut	Claremont, N. H.	Route 113 to 93 to 89 to 103 to Claremont, N. H.	10
Dunstable	Jaffrey, N. H.	Route 113 to 119 to 124 to Jaffrey, New Hampshire	7
Groton	Jaffrey, N. H.	Route 119 to 124 to Jaffrey, N. H.	7
Littleton	Jaffrey, N. H.	Route 110 to 119 to 124 to Jaffrey, New Hampshire	7
Lowell	Claremont, N. H.	Route 110 to 93 to 89 to 103 to Claremont, N. H.	10

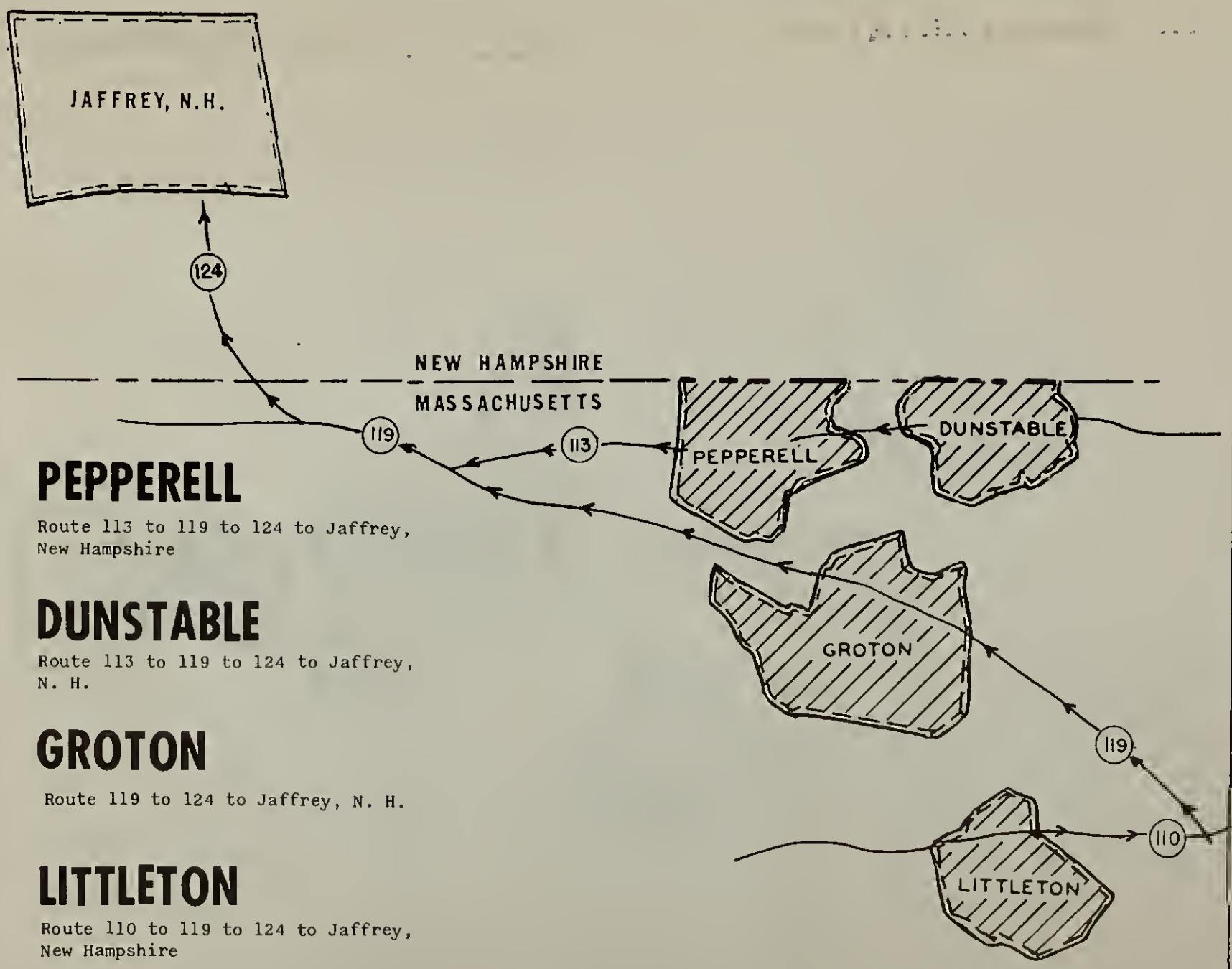
ROUTE AND DESTINATION CHART

COMMUNITIES AT RISK	HOST COMMUNITIES	ROUTE DESCRIPTION	ROUTE MAP/PAGE
Pepperell	Jaffrey, N. H.	Route 113 to 119 to 124 to Jaffrey, New Hampshire	7
Shirley	Keene, N.H.	Route 2 to 202 to 68 to 32 into Keene, N. H.	8
Harvard	Keene, N. H.	Route 2 to 202 to 68 to 32 into Keene, N. H.	8
Westford	Plymouth, N. H.	Route 495 to 3 to Everett Turnpike to 93 to Plymouth, N. H.	11
Tyngsborough	Hillsboro, N. H.	Route 3 to Everett Turnpike to 89 to 9 to Hillsboro, N. H.	11
Wilmington	Claremont, N. H.	Route 129 to 93 to 89 to 103 to Claremont, N. H.	10
Tewksbury	Claremont, N. H.	Route 16 to 93 to 89 to 103 to Claremont, N. H.	10

RELOCATION ROUTE MAPS

HOST AREA

RISK AREA



PEPPERELL

Route 113 to 119 to 124 to Jaffrey, New Hampshire

DUNSTABLE

Route 113 to 119 to 124 to Jaffrey, N. H.

GROTON

Route 119 to 124 to Jaffrey, N. H.

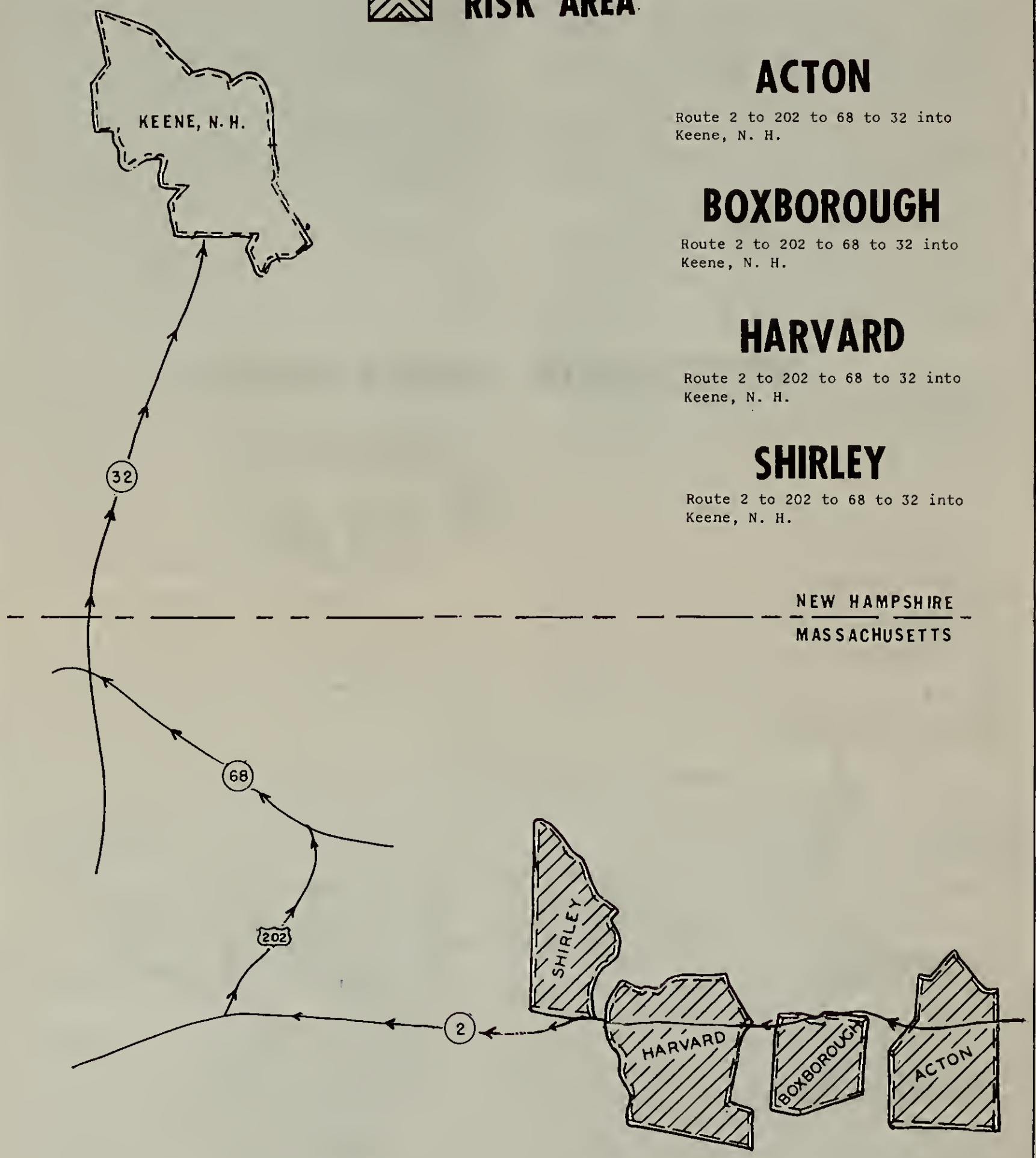
LITTLETON

Route 110 to 119 to 124 to Jaffrey, New Hampshire

RELOCATION ROUTE MAPS

HOST AREA

RISK AREA



ACTON

Route 2 to 202 to 68 to 32 into Keene, N. H.

BOXBOROUGH

Route 2 to 202 to 68 to 32 into Keene, N. H.

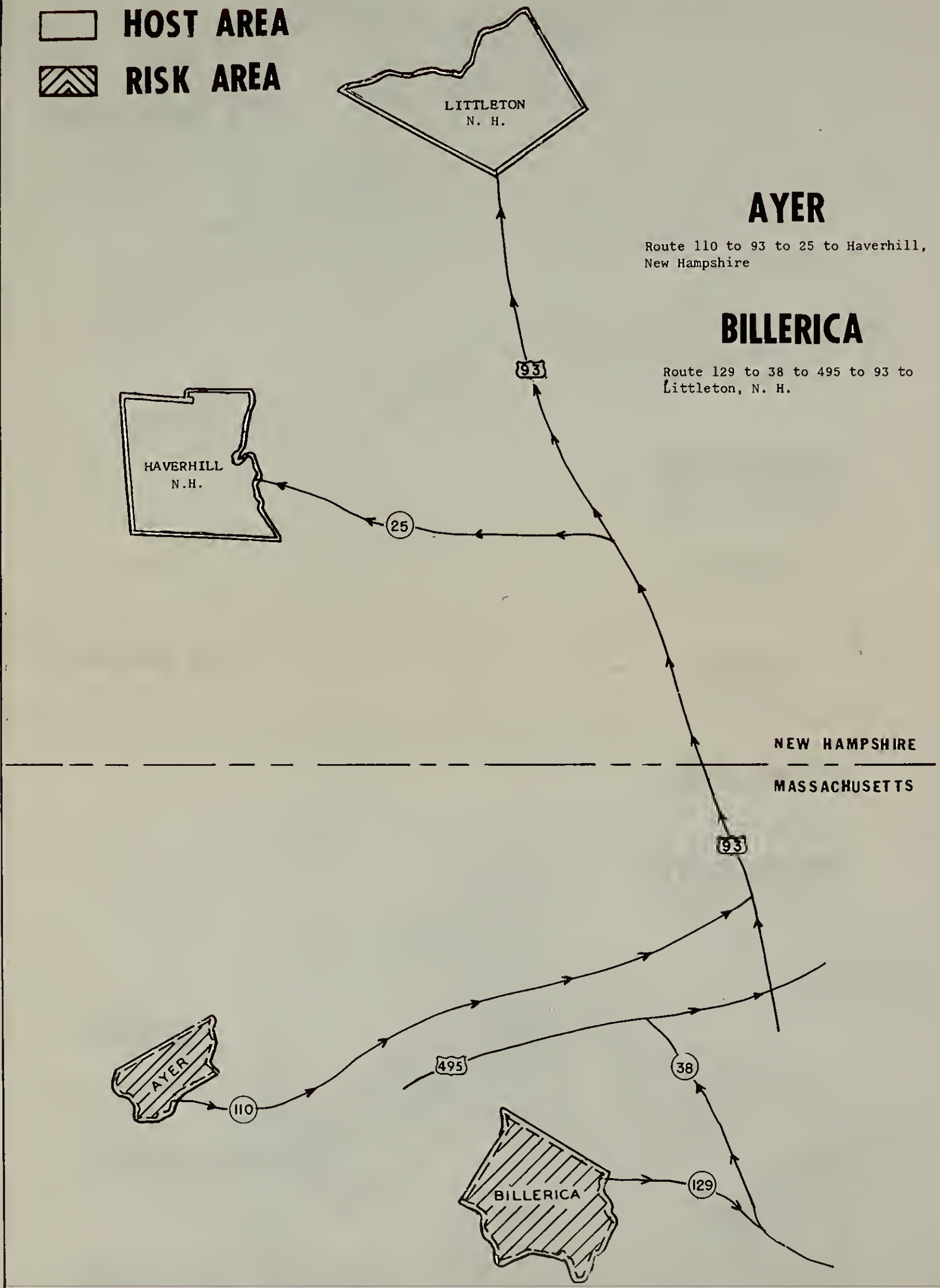
HARVARD

Route 2 to 202 to 68 to 32 into Keene, N. H.

SHIRLEY

Route 2 to 202 to 68 to 32 into Keene, N. H.

RELOCATION ROUTE MAPS



AYER

Route 110 to 93 to 25 to Haverhill, New Hampshire

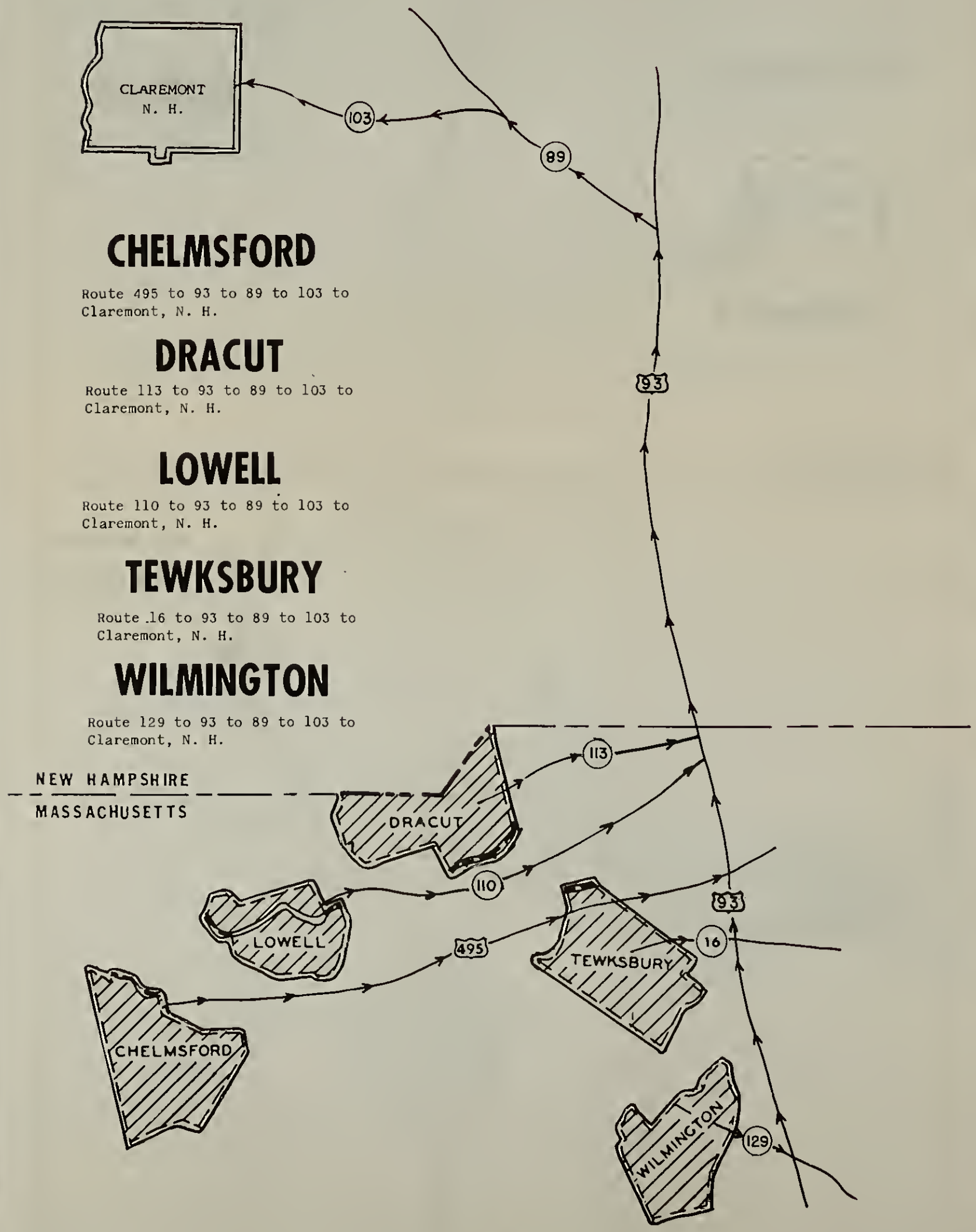
BILLERICA

Route 129 to 38 to 495 to 93 to Littleton, N. H.

RELOCATION ROUTE MAPS

HOST AREA

RISK AREA



CHELMSFORD

Route 495 to 93 to 89 to 103 to Claremont, N. H.

DRACUT

Route 113 to 93 to 89 to 103 to Claremont, N. H.

LOWELL

Route 110 to 93 to 89 to 103 to Claremont, N. H.

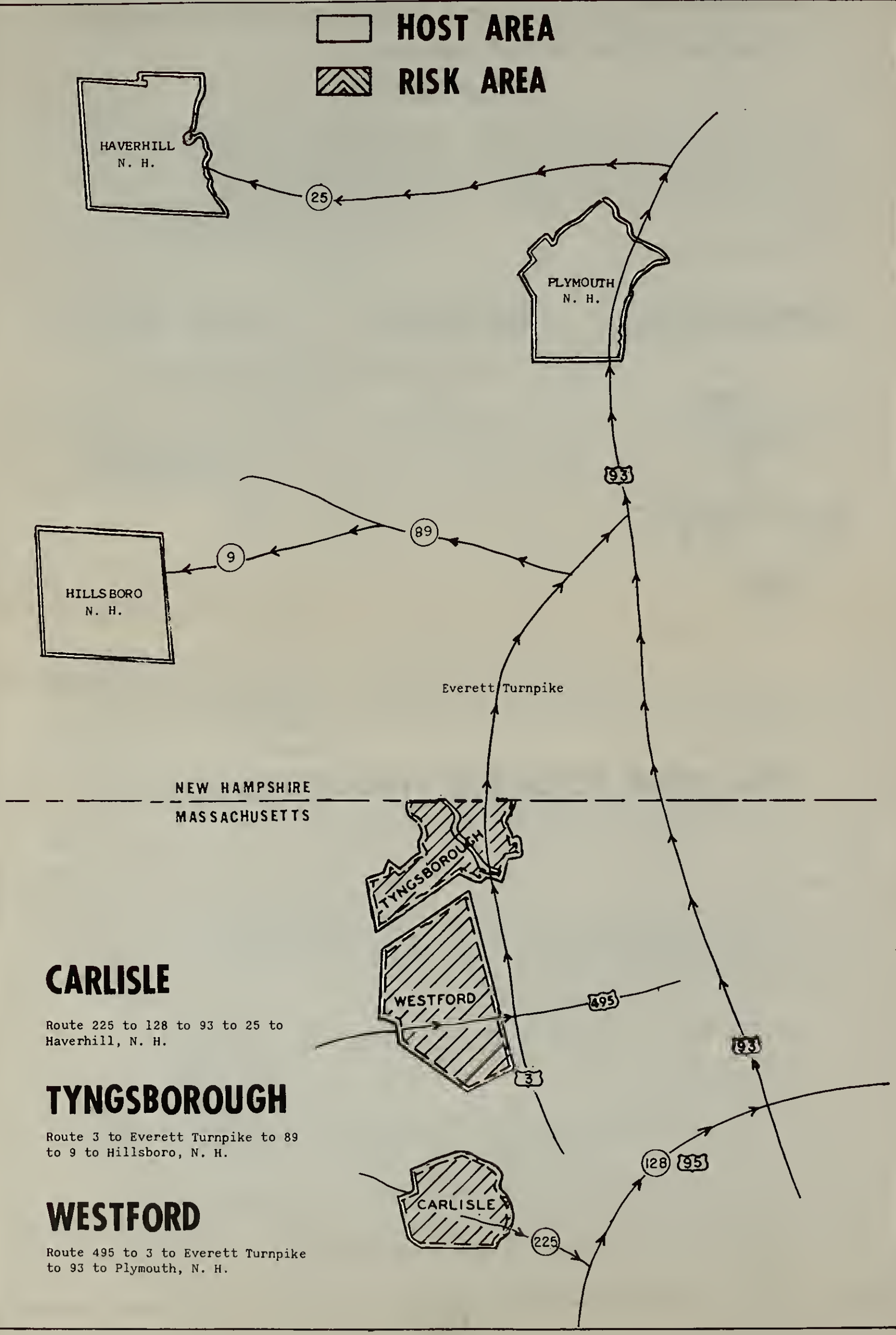
TEWKSBURY

Route 16 to 93 to 89 to 103 to Claremont, N. H.

WILMINGTON

Route 129 to 93 to 89 to 103 to Claremont, N. H.

RELOCATION ROUTE MAPS



CARLISLE

Route 225 to 128 to 93 to 25 to Haverhill, N. H.

TYNGSBOROUGH

Route 3 to Everett Turnpike to 89 to 9 to Hillsboro, N. H.

WESTFORD

Route 495 to 3 to Everett Turnpike to 93 to Plymouth, N. H.

HOST AREA RESIDENTS ONLY

If you plan to use your own home for shelter-Study the following on how to improve your

HOME SHELTER

If you take shelter in the best protected part of your home, you can add additional protection. Although this might be possible at the time you receive warning to take shelter, a certain amount of preplanning is necessary if satisfactory results are to be expected. NOW IS THE TIME TO DECIDE WHAT YOU WILL DO AND HOW YOU WILL DO IT.

If your home has a basement, pick out the corner of your basement where the ground level outside is highest. This is the safest place in the basement.

If your home does NOT have a basement, some protection can be obtained in the central part of the house, at ground level farthest away from the roof and walls.

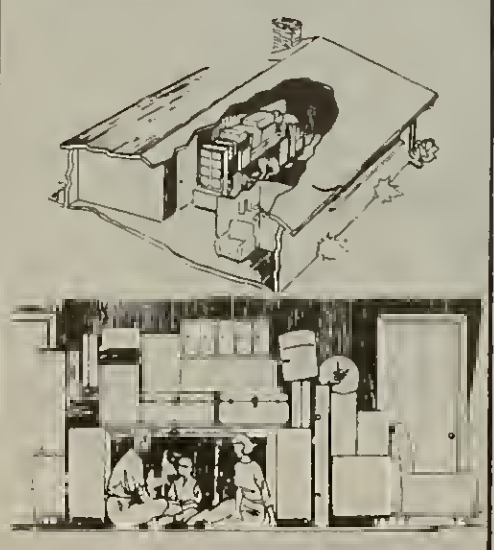
TO MAKE THESE AREAS SAFER:

BASEMENT: Place boxes or drawers on top of a sturdy table or workbench and fill with heavy material, such as dirt or sand or bricks. If the sides of the basement, away from the shelter area, have more than two feet of outside wall exposure, materials should also be placed around the open sides of the table. Be very careful not to overload the table to the point of collapse.

FIRST FLOOR OF HOUSE WITHOUT A BASEMENT: Place boxes or drawers on top AND around the sides of a sturdy table or workbench and fill them with heavy materials. Often a makeshift table can be made by using doors supported by cabinets or other pieces of furniture.

Further information about improving your home shelter can be found in the Civil Defense Booklet "IN TIME OF EMERGENCY" or from your local Civil Defense Chairman at your local town or city Civil Defense office.

GROUND FLOOR SHELTER



Place boxes or drawers on top and around the sides of a sturdy table or workbench and fill them with heavy materials. Often a makeshift table can be made by using doors supported by cabinets or other pieces of furniture.

WHAT TO DO NOW

(1) Study the sketches and decide which is applicable to your situation and select a shelter location.

(2) Take note of available shielding materials such as bricks, concrete blocks, sand or loose earth which could be moved quickly.

Other things could also be used as shielding material, such as:

- House doors that have been taken off their hinges (especially heavy outside doors).
- Dressers and chests (especially if the drawers are filled with sand or earth).
- Tables and bookcases.
- Large appliances (such as washers, dryers, TV and hi-fi sets).
- Trunks, boxes and cartons (if filled with earth, sand or other heavy material).
- Books, magazines, and stacks of firewood or lumber.
- Flagstones from outside walks and patios.

(3) If no shielding materials are presently available, obtain and store some in a convenient location.

(4) Take note of nonperishable foods normally kept in the home. If these are not sufficient to maintain your family for two weeks, increase the supply.

BASEMENT SHELTER

SELECT THE CORNER OF YOUR BASEMENT WHERE THE GROUND LEVEL OUTSIDE IS HIGHEST. THIS IS THE SAFEST PLACE IN THE BASEMENT.

Place boxes or drawers on top of a sturdy table or workbench and fill with heavy material, such as dirt or sand. If the sides of the basement away from the shaltar araa hava mora than two feet of outside wall exposure, matarials should also be placed around tha opan sides of the tabla. Be very careful not to overload the tabla to the point of collapse.

CALL NOW TO SHARE YOUR BASEMENT

Keene, N.H.	352-0840	Claremont, N.H.	542-6375	Hillsboro, N.H.	464-5306
Haverhill, N.H.	787-6308	Jaffrey, N.H.	532-7534		
Littleton, N.H.	444-7708	Plymouth, N.H.	536-2480		

This is the most serious crisis our country has ever faced. As a resident of the Host Area, you can help save the lives of your neighbors from the Lowell Risk Area, who have left their homes to seek safety here.

WILL YOU SHARE WITH ANOTHER FAMILY?

Your neighbors who have evacuated their homes need your help, particularly those families with little children. Volunteer now to bring a family to live with you and to help improve your fallout protection. You may be saving their lives. They will either bring food with them or help you buy enough. Call the number listed for your town now!

IF YOU HAVE NO BASEMENT: Follow the instructions for expedient shelters, or as a last resort, seek fallout protection, if necessary, at the nearest public shelter.

IF YOU WORK IN THE HOST AREA: If you work in a needed industry in the Host Area (food, health service or others as designated) report to work as usual - you will be needed.

FOLLOW ALL OFFICIAL INSTRUCTIONS FOR HOST AREA RESIDENTS - KEEP YOUR RADIO AND TV ON.

COMPLETE THIS QUESTIONAIRE IN DUPLICATE BEFORE ARRIVING IN HOST AREA

Family Name _____
St. Address _____
_____
City/Town Zip

FOR USE BY RECEPTION OFFICIALS

Shelter Assignment

Shelter Name _____
Address _____
Assigned _____

DO YOU NEEO TEMPORARY HOUSING? YES _____ NO _____
IF NO, WHERE WILL YOU STAY FOR THE DURATION OF THIS EMERGENCY?
HOME OF FRIEND _____ HOME OF RELATIVE _____ OTHER _____

WHERE CAN YOU BE REACHED?

ADDRESS _____ PHONE _____

IF YES, HOW MANY PEOPLE ARE EVACUATING WITH YOU?
CHILDREN _____ ADULTS _____ (PLEASE LIST BELOW)

List all family members traveling together, last name first, first name, age, sex, and occupation.

Last Name	First Name	Middle	Age	M	F	Soc.Sec.#	Occupation

List all other persons traveling with you. Use space for additional family members if necessary.

Family Name _____
St. Address _____
_____
City/Town Zip

FOR USE BY RECEPTION OFFICIALS

Shelter Assignment

Shelter Name _____
Address _____
Assigned _____

OO YOU NEED TEMPORARY HOUSING? YES _____ NO _____
IF NO, WHERE WILL YOU S:AY FOR THE OURATION OF THIS EMERGENCY?
HOME OF FRIENO _____ HOME OF RELATIVE _____ OTHER _____

WHERE CAN YOU BE REACHED?

ADDRESS _____ PHONE _____

IF YES, HOW MANY PEOPLE ARE EVACUATING WITH YOU?
CHILDREN _____ ADULTS _____ (PLEASE LIST BELOW)

List all family members traveling together, last name first, first name, age, sex, and occupation.

Last Name	First Name	Middle	Age	M	F	Soc.Sec.#	Occupation

List all other persons traveling with you. Use space for additional family members if necessary.

These are
PLANS FOR EXPEDIENT FALLOUT SHELTERS

SAVE THESE PLANS—THEY MAY SAVE YOUR LIFE

● GENERAL INFORMATION

WITHOUT PRDTECTIDN, UNTDLD NUMBERS DF AMERICANS WDULD DIE IN THE EVENT DF A NUCLEAR ATTACK. THE EXPEDIENT SHELTERS ILLUSTRATED IN THE FDLLDWING PAGES PROVIDE PRDTECTIDN TD DCCUPANTS FRDM THE DEADLY RADIATIDN DF RADIDACTIVE FALLDUT GENERATED BY A NUCLEAR DETDNATIDN—THEIR USE CAN SAVE THE LIVES DF MILLIDNS DF AMERICANS.

EVEN THDUGH THE ILLUSTRATED SHELTERS ARE VERY AUSTERE, THERE ARE A NUMBER DF THINGS THAT CAN BE DDNE TD IMPRDVE THEIR HABITABILITY AFTER THEY HAVE BEEN BUILT. WITH THE USE OF A LITTLE INGENUITY AND EFFDRT, THE SHELTERS CAN BE MADE MDRE CDMFDRTABLE. SOME DF THE THINGS THAT CAN BE DONE ARE:

- CDNSTRUCT SEATS, HAMMDCKS, DR BUNKS.
- CDVER THE FLOOR WITH BDARDS OR LOGS AND DRAPE SHEETS DR MATERIAL DVER THE EARTH WALLS.
- PRDVIDE SAFE, DEPENDABLE LIGHT.

HUMANS MUST HAVE WATER AND FDOD TD LIVE. WHEN PEDPLE ARE TD LIVE IN A SHELTER FDR A WEEK DR TWO, SUFFICIENT FOOD AND SUPPLIES MUST BE PRDVIDED FDR THE DCCUPANTS. THE MINIMUM NECESSITIES ARE:

● WATER—MINIMUM REDUIREMENTS (DEPENDENT UPON TEMPERATURE—LESS IN CDLD WEATHER, MORE IN WARMER) WILL BE FROM DNE DUART TD DNE GALLDN PER PERSDN PER DAY. STDRAGE CAN BE ACCOMPLISHED BY USING DISINFECTED METAL DR PLASTIC TRASH CANS OR BOXES LINED WITH STRONG POLYETHYLENE FILM DR STRDNG PLASTIC BAGS. FDR PURITY, EIGHT DRDPS (DNE TEASPOON) DF A 5-¼% CHLDRINE SOLUTION (e.g., CLORDX) SHDULD BE MIXED INTD EACH 5 GALLDNS DF WATER.

● FOOD—ALL FOOD SHDULD REDUIRE ND REFRIGERATION AND SHDULD BE BRDUGHT TD THE SHELTER IN AIRTIGHT TINS OR BDTTLES. UNDER SHELTER CDNDITIDNS, PEDPLE WILL REDUIRE ABDUT HALF AS MUCH FDDD AS USUAL. FOODS SHOULD HAVE A HIGH NUTRITIONAL VALUE AND A MINIMAL AMDUNT DF BULK (i.e., CANNED MEATS – FRUITS – VEGETABLES, DRIED CEREALS, HARD CANDY, ETC.)

● SANITATION—A METAL CONTAINER WITH A TIGHT-FITTING LID FOR USE AS A TDILET WITH WHICH PLASTIC BAGS CAN BE USED. TDILET PAPER, SDAP, TDWELS, SANITARY ITEMS AND A DUANTITY DF STRDNG PLASTIC BAGS WILL BE NEEDED.

● MEDICAL SUPPLIES—A WELL-STDCKED FIRST-AID KIT CDMPARABLE TD WHAT IS USUALLY KEPT AT HDME. TAKE SPECIAL MEDICINES FDR INFANTS AND DTHERS AND A GDDD FIRST-AID HANDBDDK.

● CLDTHING AND BEDDING—SEVERAL CHANGES DF CLEAN CLDTHING, ESPECIALLY SDCKS AND UNDERCLDTHING—DEPENDENT UPDN THE WEATHER, BLANKETS, PILLDWS AND SLEEPING BAGS MAY ALSD BE NEEDED.

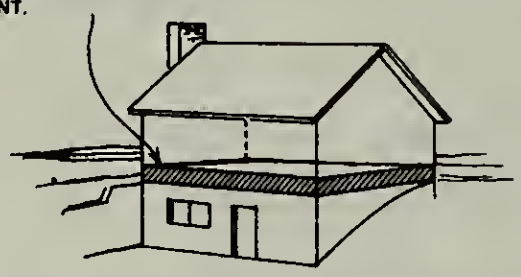
● PDRTABLE RADID—LASTLY, BUT HARDLY LEAST IMPDRTANT, A PDRTABLE RADID WITH FRESH AND EXTRA BATTERIES, RADID STATION BRDADCASTS WILL ADVISE YDU WHEN IT IS SAFE TD ABANDDN THE SHELTER AND ALSD PRDVIDE YDU WITH DTHER IMPDRTANT EMERGENCY INFDRMATIDN.

fallout protection for homes with basements
(partially belowground)

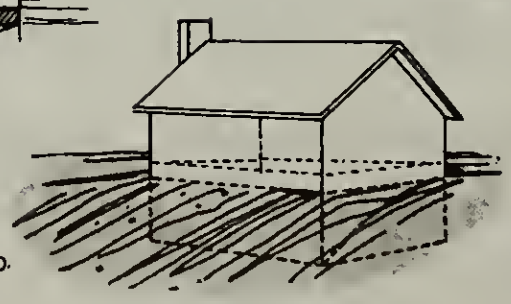
HOMES WITH BASEMENTS PARTIALLY BELOWGROUND ALSO HAVE POTENTIAL FOR PROVIDING FALLOUT PROTECTION BUT NOT AS MUCH AS THOSE WITH BASEMENTS COMPLETELY BELOWGROUND.

TO IMPROVE THE FALLOUT PROTECTION IN THE BASEMENT AREA, TWO THINGS MUST BE DONE; (1) PROVIDE AN OVERHEAD BARRIER AND, (2) INCREASE THE BARRIER (THICKNESS) OF THE EXPOSED BASEMENT WALLS. THIS CAN BE ACCOMPLISHED AS SHOWN IN SKETCHES. BOTH STEPS MUST BE TAKEN TO OBTAIN THE FALLOUT PROTECTION. DOING ONLY ONE STEP IS NOT ENOUGH.

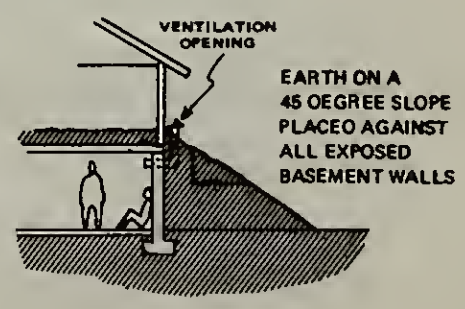
STEP ONE – PROVIDE OVERHEAD BARRIER BY PLACING 12" OF EARTH ON ROOF OR ON FLOOR OVER BASEMENT.



STEP TWO – IMPROVE VERTICAL BARRIER BY PLACING EARTH AGAINST ALL EXPOSED BASEMENT WALLS. COVER WINDOWS IN BASEMENT WALLS WITH WOOD TO PREVENT GLASS BREAKAGE DUE TO EARTH PRESSURE.

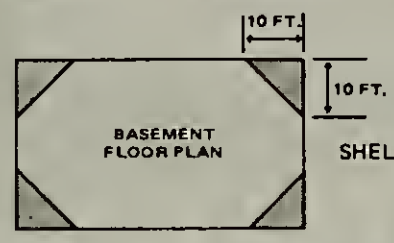


EARTH PILED AGAINST EXPOSED BSMT WALLS



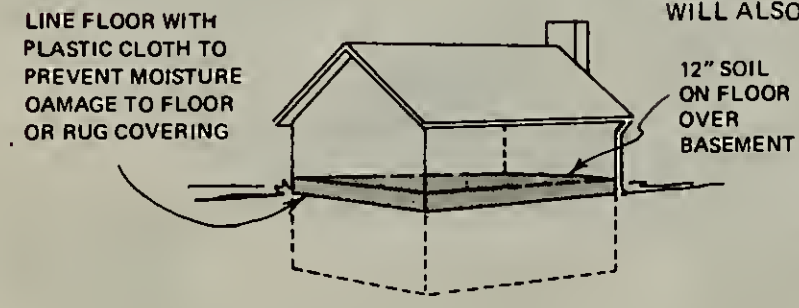
fallout protection for homes with basements
(fully belowground)

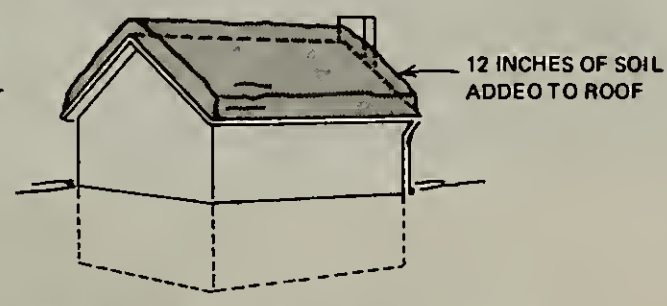
HOMES WITH BASEMENTS (COMPLETELY BELOWGROUND) ALREADY HAVE FALLOUT PROTECTION ESPECIALLY IN THE CORNERS OF THE BASEMENT.



SHELTER AREA IN CORNERS

THIS PROTECTION CAN BE ENHANCED CONSIDERABLY BY PLACING 12 INCHES OF EARTH OVER THE ENTIRE FLOOR COVERING THE BASEMENT AREA. PLACING EARTH ON THE ROOF OF THE HOME WILL ALSO INCREASE THE FALLOUT PROTECTION.

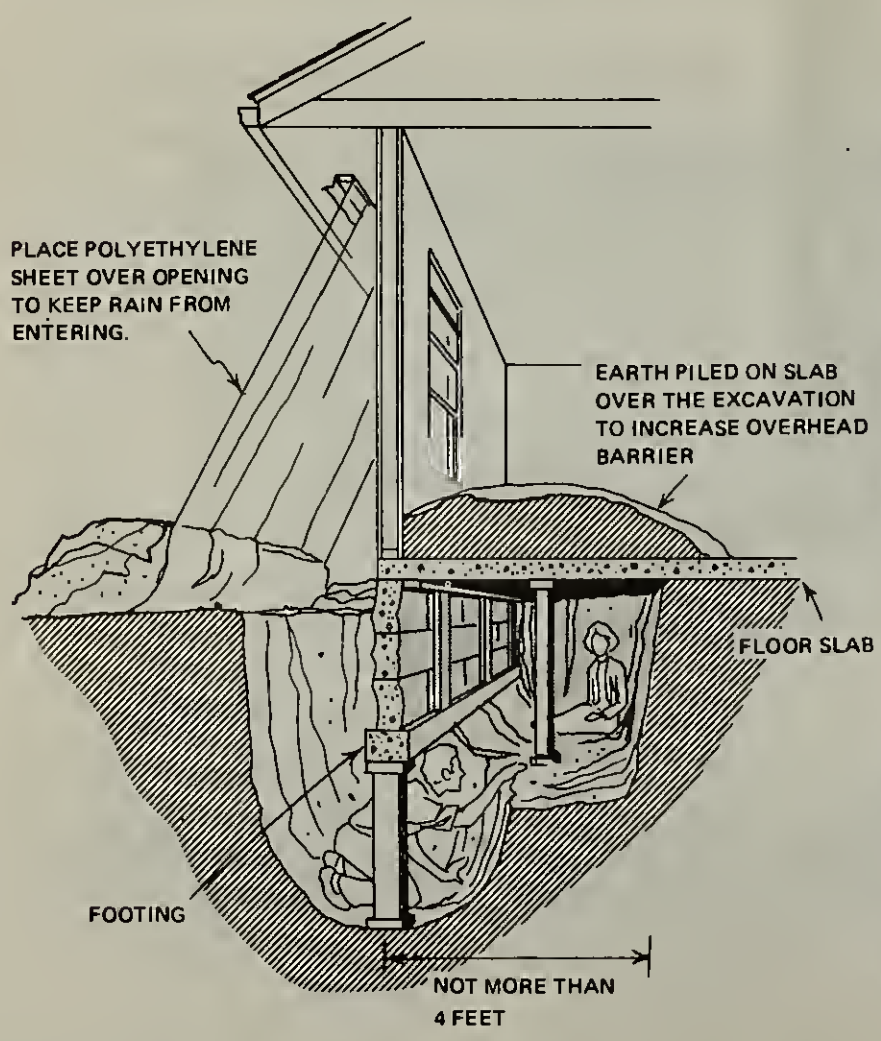




UPGRAOING THE BASEMENT SHELTER PERMITS THE ENTIRE BASEMENT AREA TO BE FALLOUT PROTECTEO, THUS ALLOWING THE HOMEOWNER TO SHARE THE BASEMENT WITH OTHERS.

REMEMBER: THE MORE MATERIAL YOU AOO THE GREATER THE PROTECTION. A WORD OF CAUTION: PLACING MORE THAN 12 INCHES OF EARTH ON FLOOR OR ROOF WITHOUT PROVIOING AOOITIONAL SHORING MAY CAUSE JOISTS TO SAG EXCESSIVELY ANO FAIL.

fallout protection for homes without basements


PLACE POLYETHYLENE SHEET OVER OPENING TO KEEP RAIN FROM ENTERING.
EARTH PILED ON SLAB OVER THE EXCAVATION TO INCREASE OVERHEAD BARRIER
FLOOR SLAB
FOOTING
NOT MORE THAN 4 FEET

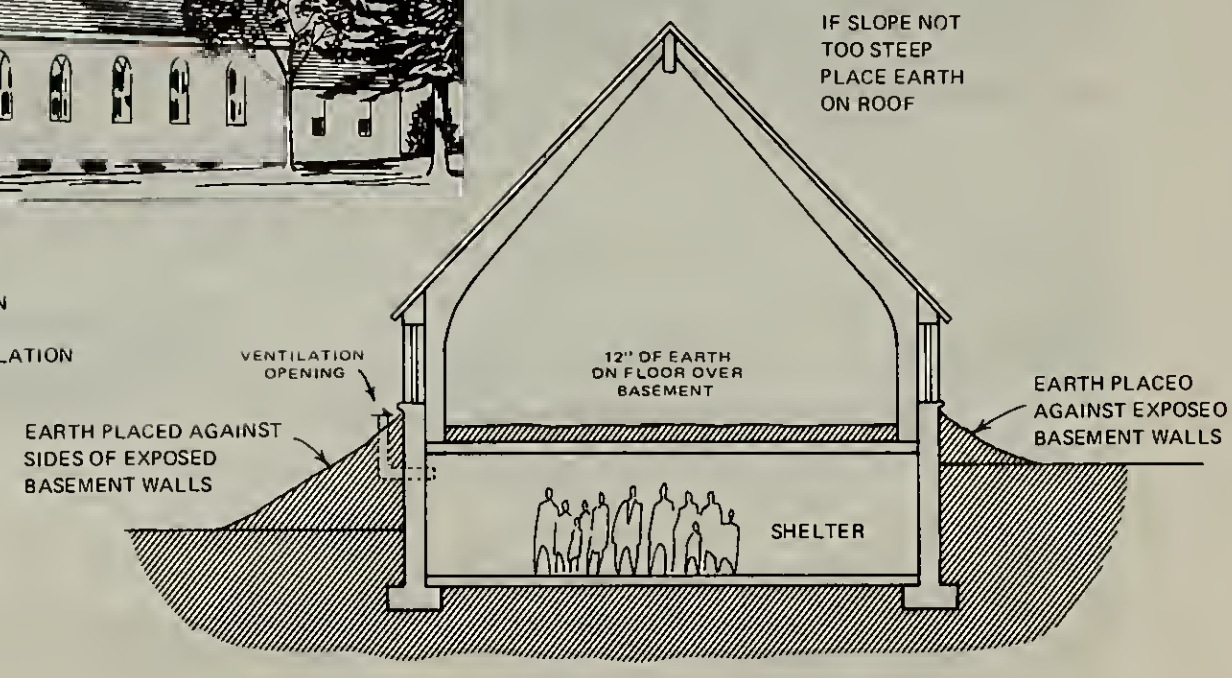
IN ORDER TO PROVIDE EXPEDIENT FALLOUT PROTECTION TO HOMES WITHOUT BASEMENT, ONE APPROACH IS TO EXCAVATE BENEATH THE FLOOR SLAB AS DEPICTED IN THE SKETCH. BEING UNDER AN EAVE WILL, IN MANY CASES, KEEP RAINWATER OUT OF THE TRENCH AND THE SHELTER ENTRY TUNNEL. ONCE THE BOTTOM OF THE FOUNDATION WALL IS REACHED, A TUNNEL IS DUG UNDER THE FOOTING AND THE MATERIAL REMOVED FROM UNDERNEATH THE SLAB TO CREATE THE SHELTER. THE SHELTER IS OFFSET FROM THE TRENCH SO THAT THE SHELTER WALL IS NOT EXPOSED ON THE OUTSIDE. THE "HOLLOWED-OUT" SHELTER AREA CAN VARY IN SIZE, BUT IT SHOULD NOT EXTEND MORE THAN 4 FEET FROM THE FOUNDATION WALL.

IT IS EXPECTED THAT A TYPICAL SIZE FOR A 4-PERSON SHELTER MIGHT BE 4 FT. DEEP, 4 FT. HIGH, AND 6 TO B FT. LONG. SOME OF THE DIRT FROM THE TRENCH CAN BE PILED ON THE SLAB OVER THE SHELTER AND ALSO AGAINST ANY EXPOSURE AT THE TOP OF THE FOUNDATION WALL. ALTHOUGH THE EAVE WILL HELP TO KEEP RAIN OUT OF THE TRENCH, IT WOULD PROBABLY BE WELL TO STRETCH A SHEET OF POLYETHYLENE FROM THE ROOF TO THE OUTER EDGE OF THE DIRT PILE. THIS WOULD HELP TO ASSURE RAINWATER NOT ENTERING THE SHELTER TUNNEL.

fallout protection in churches

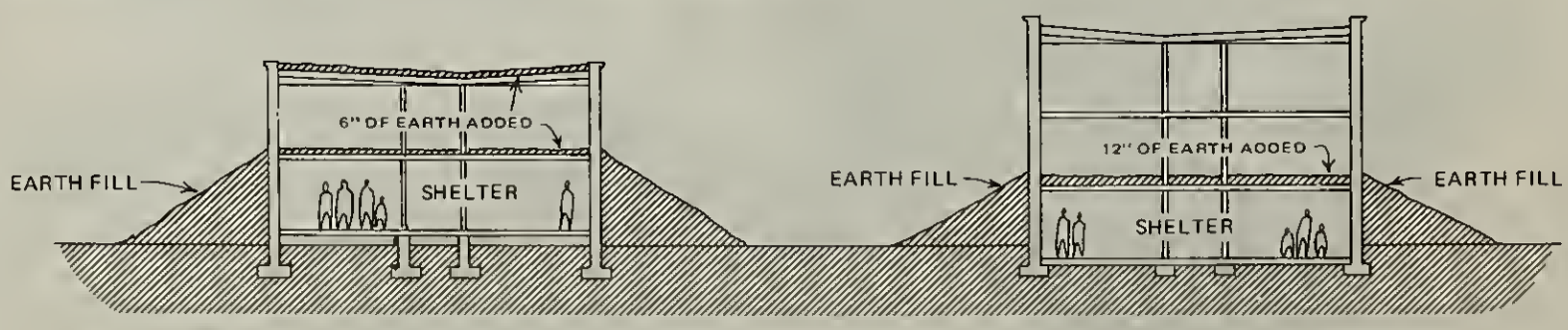
EXISTING CHURCH BUILDINGS CAN SERVE AS CDNGREGATE CARE FACILITIES FDR RISK AREA EVACUEES. BEST PRDTECTION CAN BE FDUND IN THDSE BUILDINGS THAT HAVE MASDNRY EXTERIOR WALLS AND BASEMENTS. SHELTER IN THE BASEMENT AREAS CAN BE IMPRDVED BY PLACING 12 INCHES OF EARTH ON THE FLDOR OVER THE BASEMENT AND BY MDUNDING EARTH AGAINST THE EXPDSED BASEMENT WALLS. EARTH CAN ALSD BE ADDED TO THE RDOF PRDVIDED THE SLDPE IS NOT TDD STEEP.

NOTE:
ADDITIONAL VENTILATION WILL BE REQUIREO. SEE DESIGN OF AIR VENTILATION PUMP


IF SLOPE NOT TOO STEEP PLACE EARTH ON ROOF
VENTILATION OPENING
12" OF EARTH ON FLOOR OVER BASEMENT
EARTH PLACED AGAINST SIDES OF EXPOSED BASEMENT WALLS
EARTH PLACEO AGAINST EXPOSEO BASEMENT WALLS
SHELTER

fallout protection in school buildings

EXISTING SCHOOL BUILDINGS CAN SERVE AS CONGREGATE CARE FACILITIES FOR RISK AREA EVACUEES. BEST FALLOUT PROTECTION CAN BE FOUND IN INTERIOR CORRIDORS AND ROOMS ON THE LOWEST FLOOR, ESPECIALLY IF THE SCHOOL HAS TWO OR MORE STORIES AND THE EXTERIOR WALLS ARE OF CONCRETE OR MASONRY CONSTRUCTIDN. FALLOUT PROTECTION CAN BE IMPROVED BY PROVIDING ADDITIONAL VERTICAL AND HORIZONTAL BARRIERS OF EARTH AS SHOWN IN SKETCHES. WINDOWS IN EXTERIOR WALLS THAT ARE TO BE COVERED WITH EARTH SHOULD BE PROTECTED WITH LUMBER OR PLYWOOD SHEETS SO THAT THEY WILL NOT BREAK UNDER THE EARTH FILL.

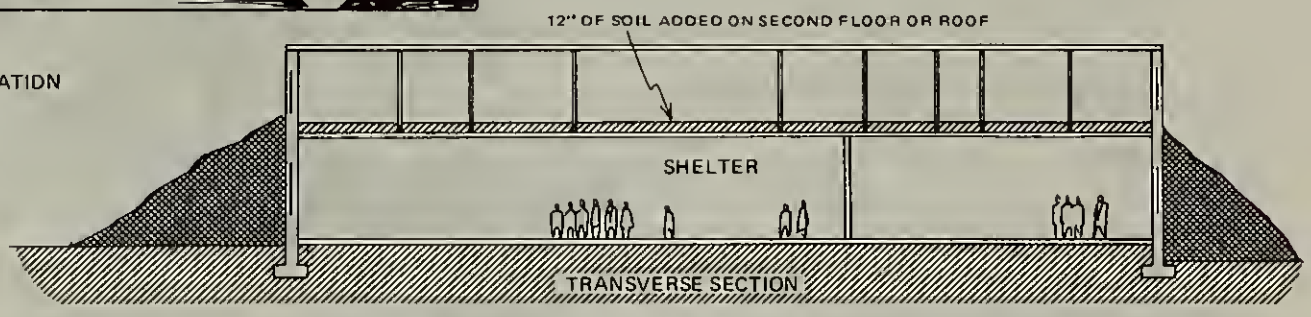


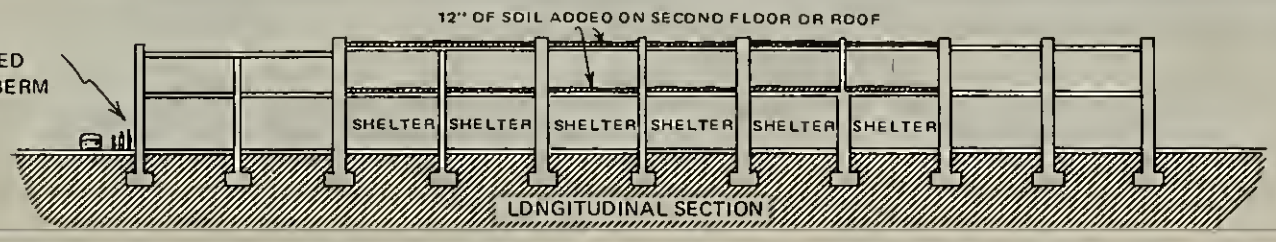
NOTE:
AOOITIONAL VENTILATION WILL BE REOUIREO SEE OESIGN OF AIR VENTILATION PUMP

fallout protection in typical downtown row-type buildings

TWO-STORY BUILDINGS IN A ROW GROUPING (NO SEPARATION BETWEEN BUILDINGS) CAN HAVE THE EXISTING FALLOUT PROTECTION IMPROVED CONSIDERABLY IN THE "INTERIOR" SECTIONS BY PLACING EARTH AT THE FRONT AND REAR OF THE BUILDINGS AS WELL AS ON THE FLOOR OVER THE FIRST STORY AND/OR THE ROOF AS SHOWN IN THE SKETCHES. THE TWO BUILDINGS AT EITHER END OF THE ROW SHOULD NOT BE USED FOR SHELTER PURPOSES SINCE THEY PROVIDE SHIELDING FOR THE "INTERIOR" SECTIONS. GLASS FRONTS SHOULD BE PROTECTED FROM BREAKAGE WITH WOOD OR PLYWOOD PANELS.

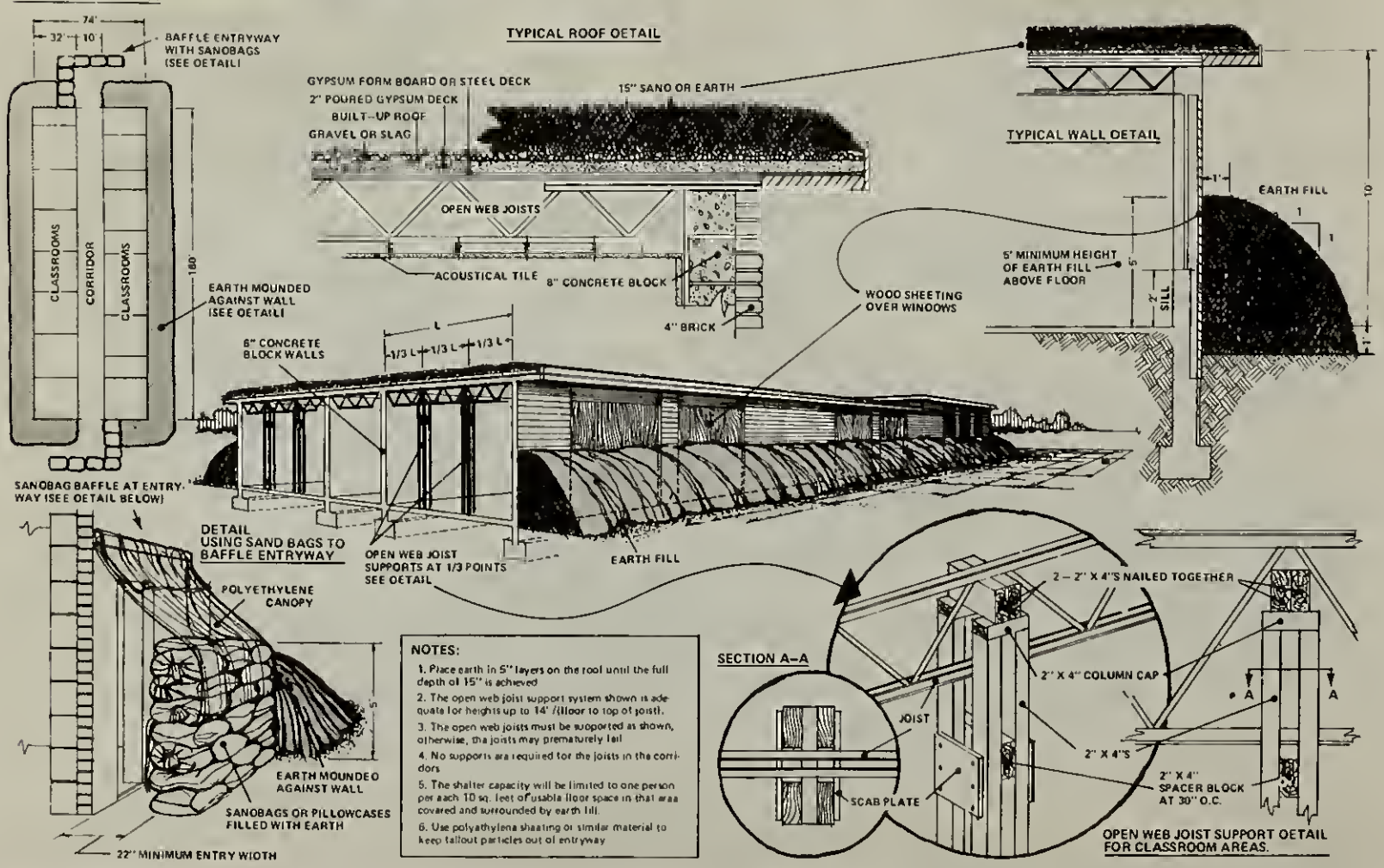
NOTE:
ADDITIDNAL VENTILATIDN WILL BE REOUIRED. SEE DESIGN OF AIR VENTILATION PUMP





EXPEDIENT UPGRADING FALLOUT PROTECTION

typical one story elementary school without basement - upgraded to obtain a protection factor of 40

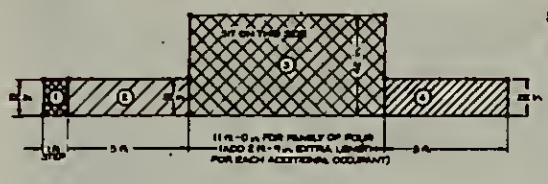

TYPICAL FLOOR PLAN
74'
32'
10'
BAFFLE ENTRYWAY WITH SANOBAGS (SEE OETAIL)
CLASSROOMS
CORRIDOR
CLASSROOMS
180'
EARTH MOUNDED AGAINST WALL (SEE OETAIL)
SANOBAG BAFFLE AT ENTRY-WAY (SEE OETAIL BELOW)
TYPICAL ROOF OETAIL
GYPSUM FORM BOARD OR STEEL DECK
2" POURED GYPSUM DECK
BUILT-UP ROOF
GRAVEL OR SLAG
15" SAND OR EARTH
OPEN WEB JOISTS
ACOUSTICAL TILE
8" CONCRETE BLOCK
4" BRICK
6" CONCRETE BLOCK WALLS
L
1/3 L
1/3 L
1/3 L
WOOD SHEETING OVER WINDOWS
TYPICAL WALL OETAIL
EARTH FILL
1'
1
1
10'
5' MINIMUM HEIGHT OF EARTH FILL ABOVE FLOOR
5'
2'
SILL
1'
EARTH FILL
OPEN WEB JOIST SUPPORTS AT 1/3 POINTS SEE OETAIL
DETAIL USING SAND BAGS TO BAFFLE ENTRYWAY
POLYETHYLENE CANOPY
5'
EARTH MOUNDED AGAINST WALL
SANOBAGS OR PILLOWCASES FILLED WITH EARTH
22" MINIMUM ENTRY WIDTH
NOTES:
1. Place earth in 5" layers on the roof until the full depth of 15" is achieved
2. The open web joist support system shown is adequate for heights up to 14' (floor to top of joist).
3. The open web joists must be supported as shown, otherwise, the joists may prematurely fail
4. No supports are required for the joists in the corridors
5. The shelter capacity will be limited to one person per each 10 sq. feet of usable floor space in that area covered and surrounded by earth fill.
6. Use polyethylene sheeting or similar material to keep fallout particles out of entryway
SECTION A-A
2 - 2" X 4"S NAILED TOGETHER
2" X 4" COLUMN CAP
JOIST
2" X 4"S
SCAB PLATE
2" X 4" SPACER BLOCK AT 30" O.C.
A
A
OPEN WEB JOIST SUPPORT OETAIL FOR CLASSROOM AREAS.

EXPEDIENT FALLOUT SHELTER

LOG—COVERED TRENCH SHELTER

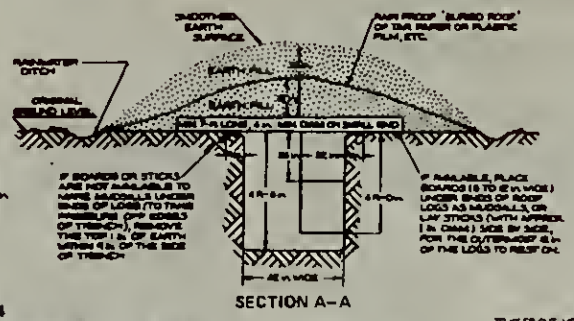
STEP 1

CLEAR AREA OF BRUSH AND TALL GRASS. LAYOUT SHELTER AS SHOWN BELOW.



LEGEND

- WOOD OR METAL STAKE
- ENTRANCE STEP
- ENTRANCE TRENCH
- SHELTER ROOM
- VENTILATION TRENCH


SMOOTHED EARTH SURFACE
RAINPROOF 'BURIED ROOF' OF TAR PAPER OR PLASTIC FILM, ETC.
RAINWATER DITCH
ORIGINAL GROUND LEVEL
EARTH FILL
EARTH FILL
IF BOARDS OR STICKS ARE NOT AVAILABLE TO MAKE MUDDALLS UNDER ENDS OF LOGS (TO TAKE PRESSURE OFF ENDS OF TRENCH), REMOVE THIS TRIP 1 ft. OF EARTH WITHIN 4 ft. OF THE SIDE OF TRENCH
IF AVAILABLE, PLACE BOARDS (6 TO 12 in. WIDE) UNDER ENDS OF ROOF LOGS AS MUDSILLS, OR LAY STICKS (WITH APPROX. 1 in. DIAM.) SIDE BY SIDE, FOR THE LOGS/TARPAPER 4 in. OF THE LOGS TO REST ON.

SECTION A–A

STEP 4

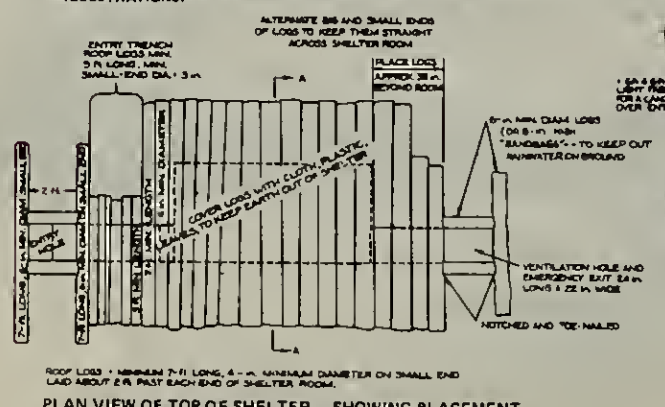
PLACE LOGS OVER TRENCH. POSITION TIES FOR BED SHEET CHAIRS OR HAMMOCKS. PLACE NEWSPAPER OR OTHER MATERIAL AS INDICATED OVER LOGS. PLACE EARTH FILL AND BURIED ROOF.

STEP 2

BEGIN EXCAVATINO THE TRENCH. PLACE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE EDGE OF TRENCH SO THAT THE ROOF LOGS CAN LATER BE PLACED OVER THE TRENCH.

STEP 3

AS THE TRENCH EXCAVATION PROGRESSES, SOME WORKERS SHOULD BEGIN CUTTING LOGS TO THE LENGTH AND SIZE AS SHOWN ON THE ILLUSTRATIONS.

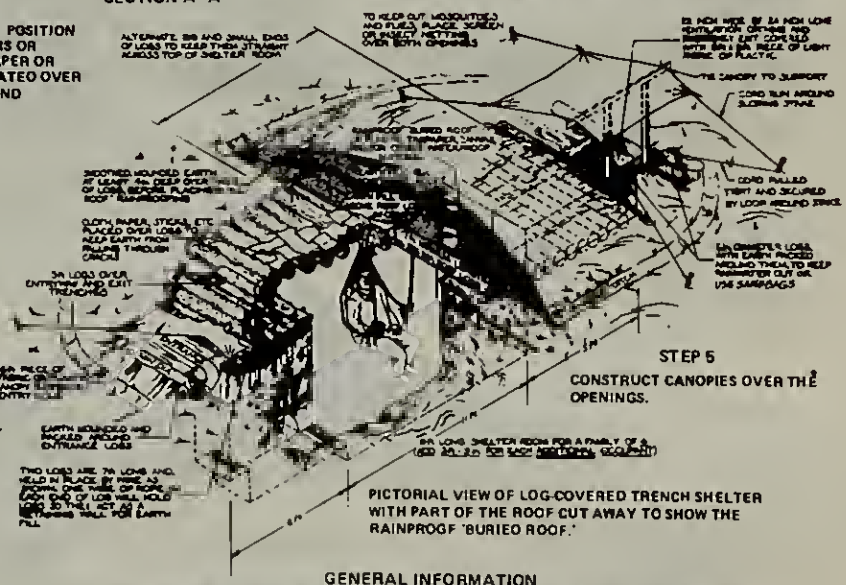

ALTERNATE BIG AND SMALL ENDS OF LOGS TO KEEP THEM STRAIGHT ACROSS SHELTER ROOM
ENTRY TRENCH ROOF LOGS MIN. 5 ft. LONG, MIN. SMALL-END DIA. 5 in.
PLACE LOGS APPROX. 36 in. BEYOND ROOM
6 in. MIN. DIAM. LOGS (OR 8 in. HIGH "SANDBAGS" – TO KEEP OUT RAINWATER ON GROUND
COVER LOGS WITH CLOTH, PLASTIC, ETC. TO HELP KEEP EARTH OUT OF SHELTER
VENTILATION HOLE AND EMERGENCY EXIT 24 in. LONG x 22 in. WIDE
NOTCHED AND "TOE-NAILED"

ROOF LOGS – MINIMUM 7–ft LONG, 4 – in. MINIMUM DIAMETER ON SMALL END LAID ABOUT 2 ft. PAST EACH END OF SHELTER ROOM.

PLAN VIEW OF TOP OF SHELTER – SHOWING PLACEMENT OF LOGS FOR ROOF-EARTH FILL NOT SHOWN

STEP 5

CONSTRUCT CANOPIES OVER THE OPENINGS.


TO KEEP OUT MOSQUITOES AND FLIES, PLACE SCREEN OR INSECT NETTING OVER BOTH OPENINGS
ALTERNATE BIG AND SMALL ENDS OF LOGS TO KEEP THEM STRAIGHT ACROSS TOP OF SHELTER ROOM
SMOOTHED MOUNDED EARTH AT LEAST 4in. DEEP OVER OF LOGS BEFORE PLACING ROOF TARPAPER/ETC.
CLOTH, PAPER, STICKS, ETC. PLACED OVER LOGS TO HELP KEEP EARTH FROM FALLING THROUGH CRACKS
3ft LOGS OVER ENTRYWAY AND EXIT TRENCHES
EARTH MOUNDED AND PACKED AROUND ENTRANCE LOGS
TWO LOGS ARE 7ft LONG AND HELD IN PLACE BY WIRE AS SHOWN. ONE END OF ROOF LOG ON SIDE OF LOG WILL HOLD LOG SO THEY DO NOT ROLL
CORD TO SUPPORT CANOPY
CORD RUN AROUND SLOPING STAKE
CORD PULLED TIGHT AND SECURED BY LOOP AROUND STAKE
EARTH MOUNDED AND PACKED AROUND THEM, TO HELP KEEP WATER OUT OR USE SANDBAGS
9ft LONG SHELTER ROOM FOR A FAMILY OF 4

PICTORIAL VIEW OF LOG-COVERED TRENCH SHELTER WITH PART OF THE ROOF CUT AWAY TO SHOW THE RAINPROOF 'BURIED ROOF.'

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THE DEPTH BELOW THE GROUND SURFACE TO HARD ROCK OR GROUNDWATER IS BELOW THE BOTTOM OF THE TRENCH. ALSO, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH SIDEWALLS WILL NOT CAVE IN. IN ADDITION, ADEQUATE SMALL TREES THAT CAN BE CUT FOR LOGS MUST BE AVAILABLE IN THE IMMEDIATE AREA. THE SHELTER (4-PERSON CAPACITY) CAN BE BUILT BY 4 PEOPLE WORKING A TOTAL OF 18 HOURS EACH. AFTER INITIAL COMPLETION, THE SHELTER CAN BE ENLARGED TO A WIDTH OF 5 FT.–6 IN. AND DEEPENED TO 6 FT. HOWEVER, 9–FT LOGS MUST BE USED IN PLACE OF 7–FT LOGS AND THE BURIED ROOF MUST BE LARGE ENOUGH TO COVER THE WIDENED SHELTER DURING THE INITIAL CONSTRUCTION.

TOOLS AND MATERIALS

1. SAW AND/OR AXE.
2. PICK OR MATTOCK.
3. LONG-HANDLED SHOVELS.
4. RAINPROOFING MATERIAL (PLASTIC OR POLYETHYLENE) 25 SQUARE YARDS. FOR EACH PERSON ABOVE 4, ADD 2 SQ YDS.
5. 50 FEET OF STRONG STRING OR CORD AND A KNIFE.
6. TAPE MEASURE OR YARD STICK.
7. AT LEAST 5 PILLOW CASES AND/OR SANDBAGS.
8. WORK GLOVES.
9. BED SHEETS FOR USE AS "CHAIRS" OR "HAMMOCKS" – 1 PER PERSON PLUS AT LEAST 15 FEET OF STRONG ROPE OR CORD PER BED SHEET.
10. 15 POUNDS OF NEWSPAPERS TO PLACE OVER ROOF LOGS TO KEEP EARTH FROM FALLING THROUGH CRACKS BETWEEN LOGS.

EXPEDIENT FALLOUT SHELTER

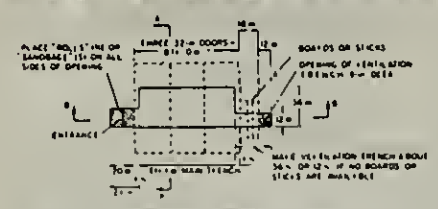
DOOR COVERED TRENCH SHELTER

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS A SHORTAGE OF SMALL TREES AND/OR BUILDING MATERIALS. THE DEPTH TO GROUND WATER AND ROCK MUST ALSO BE BELOW THE BOTTOM OF THE TRENCH. IN ADDITION, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH WALLS WILL NOT COLLAPSE. THE SHELTER (3-PERSON CAPACITY) CAN BE CONSTRUCTED BY 3 PEOPLE WORKING AN APPROXIMATE TOTAL OF 12 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING TO BUILD.

STEP 1

SELECT A REASONABLY LEVEL SITE. LAY OUT THE SHELTER AS ILLUSTRATED BY LAYING DOORS SIDE BY SIDE TO DETERMINE THE SHELTER LENGTH. DOOR KNOBS SHOULD BE REMOVED.


PLACE "ROLLS" OF SOD OR SANDBAGS 1ft ON ALL SIDES OF OPENING
THREE 32-in DOORS
BOARDS OR STICKS
OPENING OF VENTILATION TRENCH 6-in DEEP
ENTRANCE
MAKE VENTILATION TRENCH ABOUT 36 in. OR 12 in. IF NO BOARDS OR STICKS ARE AVAILABLE

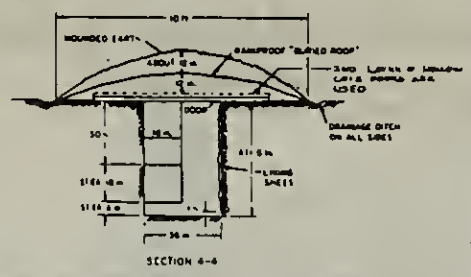
LAYOUT FOR 3-PERSON CAPACITY

STEP 2

EXCAVATE THE SHELTER TRENCH, ENTRYWAY AND VENTILATION TRENCH AS SHOWN. PILE THE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE TRENCH LIMITS SO THAT IT WILL NOT INTERFERE WITH THE LATER PLACEMENT OF DOORS OVER THE TRENCH.

STEP 3

IF THERE ARE ADEQUATE SHEETS OR FABRIC AVAILABLE, LINE THE TRENCH WALLS WITH THEM. THEN PLACE DOORS OVER THE TRENCH.



SECTION A–A

STEP 4

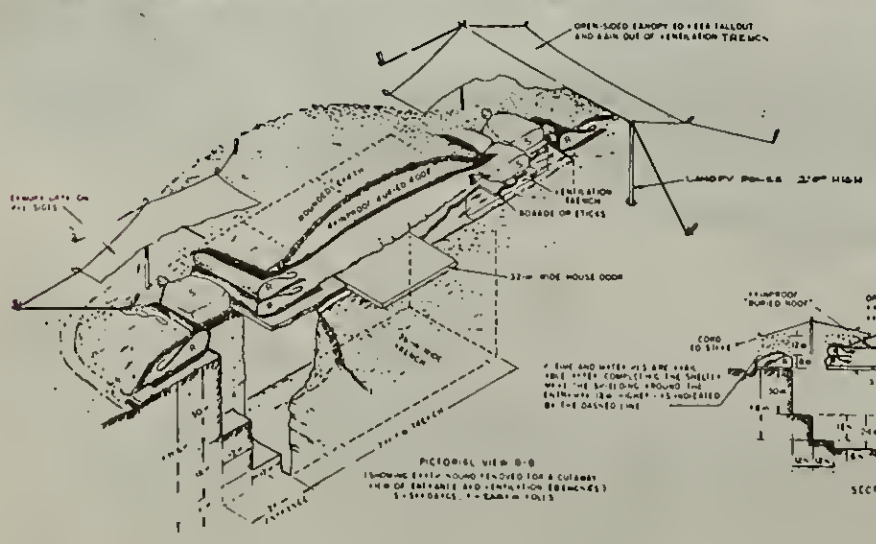
IN ORDER TO HOLD IN PLACE AN ADEQUATE AMOUNT OF EARTH ON TOP OF THE DOORS, CONSTRUCT EARTH "ROLLS" AROUND THE ENTRY-WAY AS SHOWN. THE "ROLLS" WILL KEEP THE EARTH FILL IN PLACE. SEE HOW TO MAKE AN EARTH ROLL.

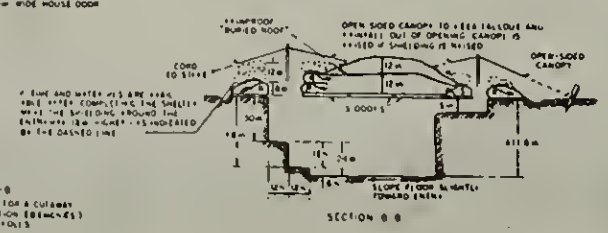
STEP 5

PLACE EARTH FILL AND THE WATERPROOFING MATERIAL OVER THE DOORS. PLACE SANDBAGS AS SHOWN ON THE ILLUSTRATIONS.

STEP 6

CONSTRUCT SHALLOW DRAINAGE DITCHES ON ALL SIDES AND PLACE CANOPIES OVER THE OPENINGS.


OPEN-SIDED CANOPY TO KEEP FALLOUT AND RAIN OUT OF VENTILATION TRENCH
CANOPY POLES 2½ft HIGH
MOUNDED EARTH
RAINPROOF BURIED ROOF
VENTILATION TRENCH
BOARDS OR STICKS
32-in WIDE HOUSE DOOR



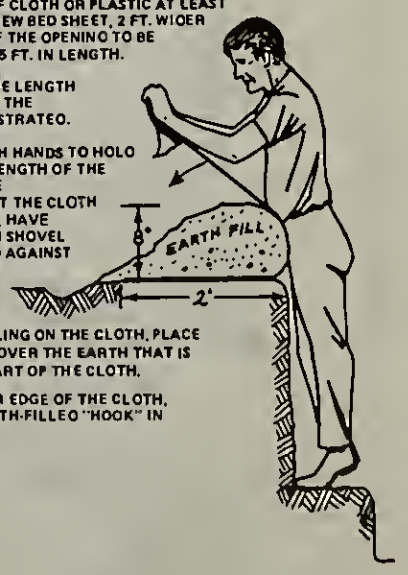
SECTION B–B

TOOLS AND MATERIALS

1. DOORS (INTERIOR SOLID OR HOLLOW-CORE) – 1 FULL SIZE (32" MINIMUM WIDTH) FOR EACH PERSON. IF DOORS MEASURE LESS THAN 32" IN WIDTH, USE A COMBINATION OF DOORS TO PROVIDE THE MINIMUM WIDTH PER PERSON. IF DOORS ARE HOLLOW CORE-USE TWO LAYERS.
2. PICK AND/OR MATTOCK.
3. LONG-HANDLED SHOVELS AND SQUARE BLADED SHOVEL
4. RAINPROOFING MATERIAL – (e.g., PLASTIC SHEETING, CANVAS PLASTIC TABLE COVERS, ETC.) AT LEAST 25 SQUARE FEET PER PERSON PLUS 2 PIECES ABOUT 5 FT. by 5 FT. FOR USE AS CANOPIES.
5. ONE BEDSHEET OR THE EQUIVALENT OF 50 SQ. FT. OF CLOTH OR PLASTIC PER PERSON TO LINE TRENCH AND MAKE EARTH-FILLED ROLLS.
6. TWO PILLOWCASES PER PERSON TO USE AS SANDBAGS.
7. STRING OR CORD TO TIE CANOPIES AND SANDBAGS.
8. KNIFE.
9. SEVERAL BOARDS ABOUT 3 FEET LONG.
10. MEASURING TAPE AND/OR RULER.
11. WORK GLOVES FOR EACH WORKER.
12. HAMMER AND HAND SAW.

HOW TO MAKE AN EARTH ROLL

1. SELECT A PIECE OF CLOTH OR PLASTIC AT LEAST AS STRONG AS A NEW BED SHEET, 2 FT. WIDER THAN THE SIDE OF THE OPENING TO BE PROTECTED, AND 5 FT. IN LENGTH.
2. PLACE 2 FT. OF THE LENGTH OF THE CLOTH ON THE GROUND, AS ILLUSTRATED.
3. WHILE USING BOTH HANDS TO HOLD UP 3 FT. OF THE LENGTH OF THE CLOTH AND WHILE PRESSING AGAINST THE CLOTH WITH YOUR BODY, HAVE ANOTHER PERSON SHOVEL EARTH ONTO AND AGAINST THE CLOTH.



4. WHILE STILL PULLING ON THE CLOTH, PLACE THE UPPER PART OVER THE EARTH THAT IS ON THE LOWER PART OF THE CLOTH.
5. COVER THE UPPER EDGE OF THE CLOTH, FORMING AN EARTH-FILLED "HOOK" IN THIS EDGE.

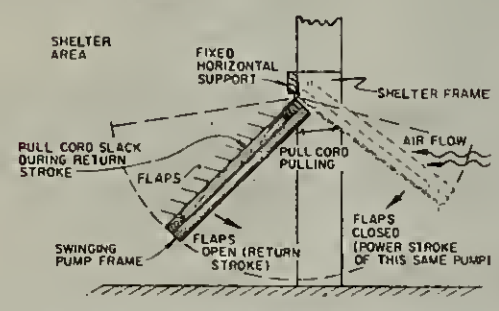
EXPEDIENT FALLOUT SHELTER

AIR VENTILATION PUMP—EMERGENCY LAMP

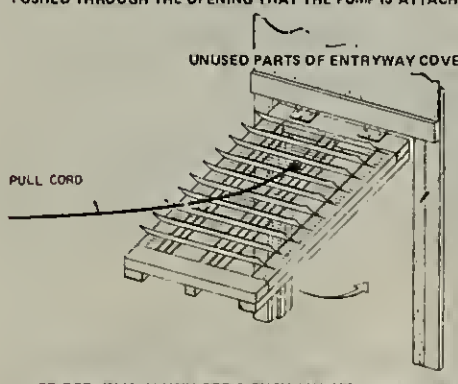
ALL EXPEDIENT SHELTERS ARE DESIGNED TO PROVIDE FOR SOME NATURAL VENTILATION. IN VERY HOT WEATHER, ADDITIONAL VENTILATION MAY BE REQUIRED TO PROVIDE A LIVABLE TEMPERATURE. CONSTRUCTION OF AN AIR PUMP THAT CAN PROVIDE ADDITIONAL VENTILATION IS ILLUSTRATED BELOW.

STUDY ALL INSTRUCTIONS BEFORE STARTING CONSTRUCTION

STEP 1 AIR PUMP



THE AIR PUMP OPERATES BY BEING SWUNG LIKE A PENDULUM. IT IS HINGED AT THE TOP OF ITS SWINGING FRAME. IT IS SWUNG BY PULLING AN ATTACHED CORD. THE FLAPS ARE FREE TO ALSO SWING AND WHEN THEY ARE IN THE CLOSED POSITION, AIR IS PUSHED THROUGH THE OPENING THAT THE PUMP IS ATTACHED TO.



TO OBTAIN MAXIMUM EFFICIENCY AND MOVE THE LARGEST AMOUNT OF AIR, THE UNUSED PORTIONS OF THE ENTRYWAY SHOULD BE COVERED WITH WOOD, PLASTIC, CLOTH, STIFF PAPER OR SIMILAR MATERIALS.

STEP 2 MATERIALS AND TOOLS NEEOED TO CONSTRUCT AN AIR PUMP

(MATERIALS SIZED FOR A 36-INCH BY 29-INCH PUMP) LUMBER SIZES CAN BE ALTERED, DEPENDING ON AVAILABILITY.

A. LUMBER

SIZE	QUANTITY	SIZE	QUANTITY
1" X 2" X 36"	2	1" X 2" X 32"	2
1" X 1" X 36"	1	1" X 1" X 32"	1
1" X 2" X 29"	2	1" X 4" X 36"	1

B. ONE PAIR ORDINARY DOOR OR CABINET BUTT HINGES, OR METAL STRAP HINGES, OR IMPROVISED HINGES MADE OF LEATNER, WOVEN STRAPS, CORDS OR FOUR HOOK & EYE SCREWS WHICH CAN BE JOINED TO FORM TWO HINGES.

C. 24 NAILS ABOUT 2" LONG, PLUS SCREWS FOR HINGES.

*D. POLYETHYLENE FILM, 3 TO 4 MILS THICK, OR PLASTIC DROP-CLOTH, OR RAINCOAT-TYPE FABRIC, OR STRONG HEAVY PAPER – 10 RECTANGULAR-SHAPED PIECES, 30" X 5½".

*E. 30' OF SMOOTH, STRAIGHT WIRE FOR USE AS FLAP PIVOT WIRES – (ABOUT AS THICK AS COAT-HANGER WIRE) OR CUT FROM 10 WIRE COAT HANGERS, OR 35' OF NYLON STRING (COAT-HANGER WIRE THICKNESS).

*F. 30 SMALL STAPLES, OR SMALL NAILS, OR 60 TACKS TO ATTACH FLAP PIVOT WIRES TO WOOD FRAME.

*G. 30' OF ¾" TO 1" WIDE PRESSURE-SENSITIVE WATERPROOF TAPE THAT DOES NOT STRETCH, OR USE NEEDLE AND THREAD TO SEW HEM TUNNELS TO THE FLAPS.

*H. FOR FLAP STOPS, 150 FT OF LIGHT STRING, STRONG THREAD, OR THIN SMOOTH WIRE. 90 TACKS OR SMALL NAILS TO ATTACH FLAP STOPS TO THE WOOD FRAME, OR FLAP STOPS CAN BE TIED TO THE FRAME.

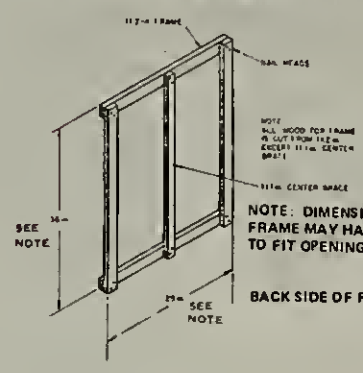
I. 10 FEET OF CORD FOR THE PULL CORD.

J. DESIRABLE TOOLS: HAMMER, SAW, WIRECUTTER-PLIERS, SCREWDRIVER, SMALL DRILL, SCISSORS, KNIFE, YARDSTICK, AND PENCIL.

* Items must be sized or adjusted to fit opening into which airpump is to be placed.

STEP 3 HOW TO CONSTRUCT THE AIR PUMP

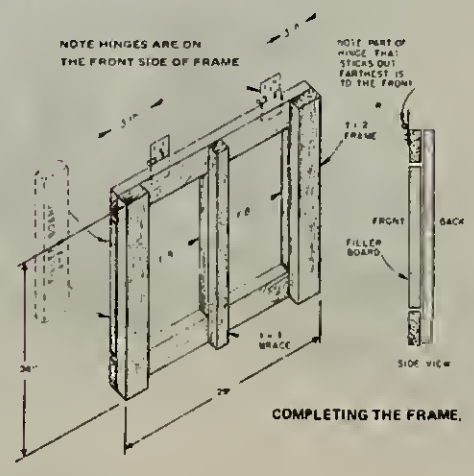
A. CUT LUMBER AND ASSEMBLE FRAME AS SHOWN



NOTE: DIMENSIONS SHOWN FOR FRAME MAY HAVE TO BE ADJUSTED TO FIT OPENINGS IN A SHELTER.

BACK SIDE OF FRAME

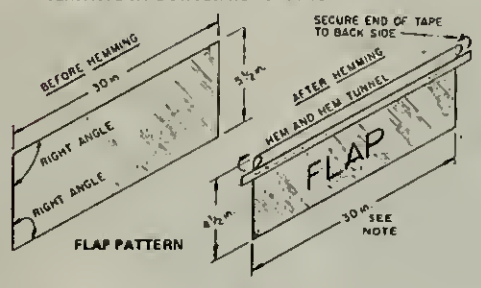
B. COMPLETE FRAME AND ATTACH HINGES. IF DRILL IS NOT AVAILABLE TO DRILL SCREW HOLES TO ATTACH HINGES, USE A NAIL TO MAKE THE HOLES.



COMPLETING THE FRAME.

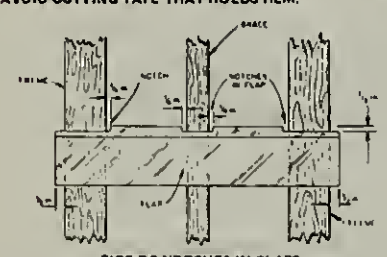
HOW TO CONSTRUCT THE AIR PUMP (CONT'O)

C. CUT 10 RECTANGULAR STRIPS 30" LONG BY 5½" WIDE FOR USE AS FLAPS. HEM FLAPS AS SHOWN. USE PRESSURE-SENSITIVE TAPE OR SEW HEM SHUT TO FORM HEM TUNNEL.



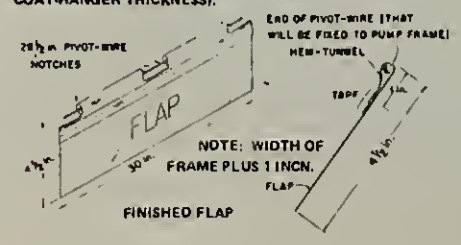
NOTE: WIDTH OF FRAME PLUS 1 INCH

AFTER HEM IS MADE, CUT NOTCHES IN FLAPS AS SHOWN. AVOID CUTTING TAPE THAT HOLDS HEM.



SIZE OF NOTCHES IN FLAPS

INSERT 10 PIECES OF STRAIONT WIRE (PIVOT WIRES) INTO FLAP HEM AS SHOWN. FLAPS SHOULD SWING FREELY. STRING CAN BE USED IF WIRE NOT AVAILABLE (WIRE COAT-HANGER THICKNESS).

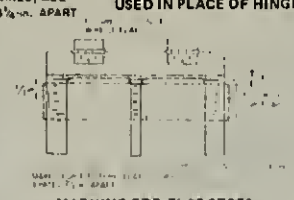


FINISHED FLAP

D. MARK PUMP FRAME FOR PIVOT WIRE AND FLAP STOP LOCATIONS.

MARKING FOR PIVOT WIRES

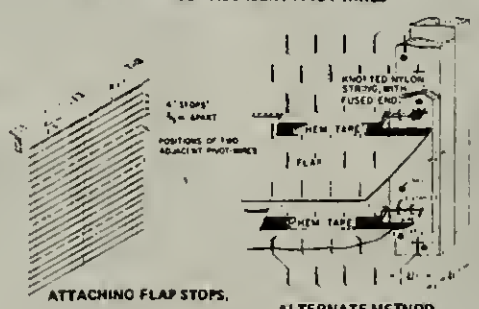
HOOK & EYE SCREWS MAY BE USED IN PLACE OF HINGES



MARKING FOR FLAP STOPS.

NOTE: FRAME DIMENSIONS MAY HAVE TO BE ADJUSTED TO FIT OPENING IN SHELTER

E. ATTACH FLAP STOPS (STRINGS OR WIRES) TO THE PUMP FRAME AT THE MARKED LOCATIONS. 4 FLAP STOPS ARE NEEDED BETWEEN ADJACENT PIVOT WIRES.

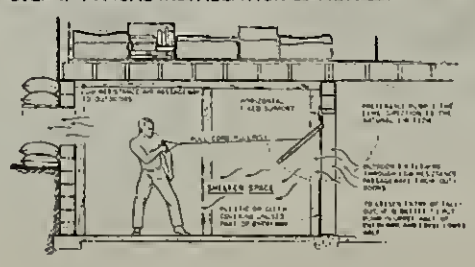


ATTACHING FLAP STOPS.

ALTERNATE METHOD – WIREMESH AS FLAP STOPS.

F. STARTING FROM THE BOTTOM – STAPLE, NAIL, TACK OR TIE THE FLAP PIVOT-WIRES WITH FLAPS IN THEIR MARKED POSITIONS. ATTACH HINGES TO HORIZONTAL SUPPORT BOARD. ATTACH PULLCORD TO CENTER BRACE.

STEP 4. TYPICAL INSTALLATION OF AIR PUMP

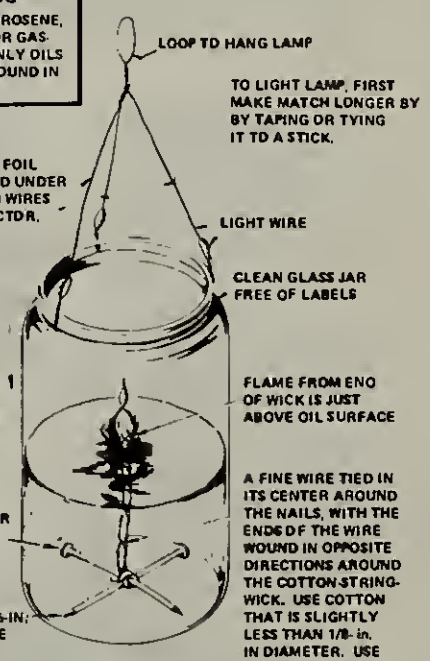


EMERGENCY LAMP

STEP 5. EMERGENCY LAMP

THIS TYPE OF LAMP WILL PROVIDE LIGHT FOR USE IN EXPEDIENT SHELTERS – THE LAMP WILL BURN SLOWLY CONSUMING ABOUT 3 OUNCES OF COOKING OIL IN 24 HOURS.

WARNING
DO NOT USE KEROSENE, DIESEL FUEL, OR GASOLINE – USE ONLY OILS OF THE KIND FOUND IN THE KITCHEN.


LOOP TO HANG LAMP
TO LIGHT LAMP, FIRST MAKE MATCH LONGER BY BY TAPING OR TYING IT TO A STICK.
ATTACH ALUMINUM FOIL 2/3 AROUND JAR AND UNDER ITS BOTTOM AND TO WIRES TO ACT AS A REFLECTOR. (NOT SHOWN.)
LIGHT WIRE
CLEAN GLASS JAR FREE OF LABELS
FILL JAR NO MORE THAN HALF-FULL WITH COOKING OIL
FLAME FROM END OF WICK IS JUST ABOVE OIL SURFACE
A FINE WIRE TIED IN ITS CENTER AROUND THE NAILS, WITH THE ENDS OF THE WIRE WOUND IN OPPOSITE DIRECTIONS AROUND THE COTTON-STRING-WICK. USE COTTON THAT IS SLIGHTLY LESS THAN 1/8-in. IN DIAMETER. USE WINDOW SCREEN WIRE OR OTHER EQUALLY FINE WIRE.
BENT NAIL, TIED OVER TOP OF ANOTHER BENT NAIL, SO THE BASE WILL NOT ROCK.
USE NAILS ABOUT ½-IN. SHORTER THAN THE DIAMETER OF JAR

WIRE-STIFFENED-WICK LAMP

KEEP EXTRA WIRE AND WICK-STRING IN SHELTER.

EMERGENCY CARE OF THE SICK AND INJURED

A nuclear attack on the United States would cause great numbers of casualties, and there would be fewer doctors, nurses, and hospitals available to care for them. Even in areas where no nuclear weapons exploded, radioactive fallout could prevent doctors and nurses from reaching injured or sick persons for a considerable period of time.

People would have to help each other during the emergency, and would have to depend on their own knowledge of first aid and emergency medical care.

Both adults and teenagers can acquire these valuable skills now by taking free courses that are offered in many communities, such as a First Aid course.

The following information is no substitute for one of these courses. The basic guidance may save lives during a nuclear emergency, however, by helping untrained persons take care of the sick and injured when professional medical assistance may not be immediately available.

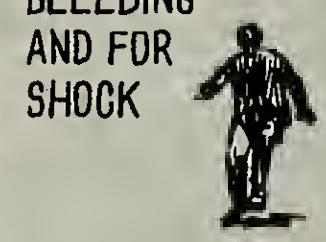
General Rules for Any Medical Emergency

1. First of all, *do no harm.* Often, well-meaning but untrained persons worsen the injury or illness in their attempts to help. Get competent medical assistance, if possible. Do not assume responsibility for a patient if you can get the help of a doctor, nurse, or experienced first-aid worker. But if no one better qualified is available, take charge yourself.

2. *Look for stoppage of breathing, and for serious bleeding.* These are two most life-threatening conditions you can do something about. They demand *immediate* treatment (see pages 59 and 62).

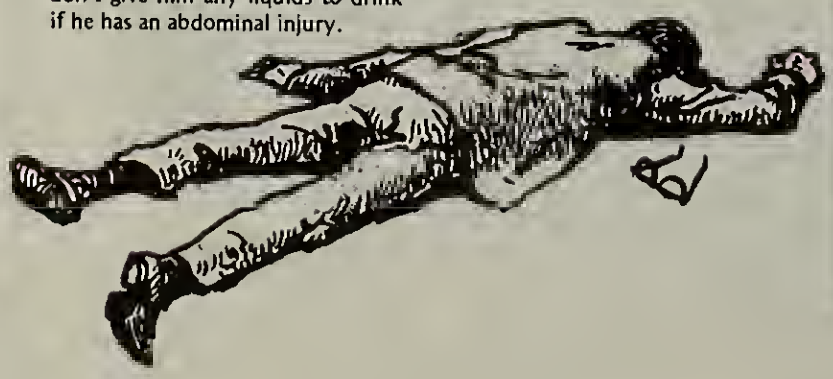
3. *Prevent shock, or treat it.* Shock, a serious condition of acute circulatory failure, usually accompanies a severe or painful injury, a serious loss of blood, or a severe emotional upset. If you *expect* shock, and take prompt action, you can prevent it or lessen its severity. This may save the patient's life. (Treatment of shock is discussed on page 63).

4. *Don't move the patient immediately.* Unless there is real danger of the patient receiving further injury where he is, he should not be moved until breathing is restored, bleeding is stopped, and suspected broken bones are splinted.



5. *Keep calm, and reassure the patient.* Keep him lying down and comfortably warm, but do not apply heat to his body, or make him sweat.

6. *Never attempt to give liquids to an unconscious person.* If he is not able to swallow, he may choke to death or drown. Also, don't give him any liquids to drink if he has an abdominal injury.



Burns

Non-serious or superficial (first degree) burns should not be covered—in fact, nothing need be done for them. However, If a first degree burn covers a large area of the body, the patient should be given fluids to drink as mentioned in item 2 following.

Some of the radioactive fallout on exposed skin may cause burns for which the same action should be taken as for normal heat burn.

The most important things to do about serious (second of third degree burns are: (*a*) Treat the patient for shock, (*b*) Prevent infection, and (*c*) Relieve pain. These specific actions should be taken:

1. Keep the patient lying down, with his head a little lower than his legs and hips unless he has a head or chest wound, or has difficulty in breathing.

2. Have him drink a half-glass every 15 minutes of a salt-and-soda solution (one teaspoonful of salt and a half-teaspoonful of baking soda to a quart of water). Give him additional plain water to drink if he wants it.

3. Cover the burned area with a *dry*, sterile gause dressing. If gauze is not available, use a clean cloth, towel, or pad.

4. With soap and water, wash the area *around* the burn (not the burn itself) for a distance of several inches, wiping *away* from the burn. The dressing will help prevent surface washings from getting into the burned area.

5. Use a bandage to hold the dry dressing firmly in place against the burned area. This will keep moving air from reaching the burn and will lessen the pain. Leave dressings and bandage in place as long as possible.

6. If adjoining surfaces of skin are burned, separate then with gauze or cloth to keep them from sticking together (such as between toes or fingers, ears and head, arms and chest).

7. If the burn was caused by a chemical—or by fallout particles sticking to the skin or hair—wash the chemical or the fallout particles away with generous amounts of plain water, then treat the burn as described above.

What NOT to do about Burns:

- — Don't pull clothing over the burned area (cut it away, if necessary).
- — Don't try to remove any pieces of cloth, or bits of dirt or debris, that may be sticking to the burn.
- — Don't try to clean the burn; don't use iodine or other antiseptics on it; and don't open any blisters that may form on it.
- — Don't use grease, butter, ointment, salve, petroleum jelly, or any type of medication on severe burns. Keeping them dry is best.
- — Don't breath on a burn, and don't touch it with anything except a sterile or clean dressing.
- — Don't change the dressings that were initially applied to the burn, until absolutely necessary. Dressings may be left in place for a week, if necessary.

Radiation Sickness

Radiation sickness is caused by the invisible rays given off by particles of radioactive fallout. If a person has received a large dose of radiation in a short period of time—generally, less than a week—he will become seriously ill and probably will die. But if he has received only a small or medium dose, his body will repair itself and he will get well. No special clothing can protect a person from gamma radiation, and no special medicines can protect him or cure him of radiation sickness.

Symptoms of radiation sickness may not be noticed for several days. The early symptoms are lack of appetite, nausea, vomiting, fatigue, weakness, and headache. Later, the patient may have sore mouth, loss of hair, bleeding gums, bleeding under the skin, and diarrhea. But these same symptoms can be caused by other diseases, and not everyone who has radiation sickness shows all these symptoms, or shows them all at once.

If the patient has headache or general discomfort, give him one or two aspirin tablets every 3 or 4 hours (half a tablet, for a child under 12). If he is nauseous, give him "motion sickness tablets," if available. If his mouth is sore or his gums are bleeding, have him use a mouthwash made up of a half-teaspoon of salt to 1 quart of water. If there is vomiting or diarrhea, he should drink slowly several glasses each day of a salt-and-soda solution (one teaspoonful of salt and one-half teaspoonful of baking soda to 1 quart of cool water), plus bouillon or fruit juices. If available, a mixture of kaolin and pectin should be given for diarrhea. Whatever his symptoms, the patient should be kept lying down, comfortably warm, and resting.

Remember that radiation sickness is *not* contagious or infectious and one person cannot "catch it" from another person.

To Stop Serious Bleeding

1. Apply firm, even pressure to the wound with a dressing, clean cloth, or sanitary napkin. If you don't have any of these, use your bare hand until you can get something better. Remember, you must keep blood from running out of the patient's body. Loss of 1 or 2 quarts will seriously endanger his life.

2. Hold the dressing in place with your hand until you can bandage the dressing in place. In case of an arm or leg wound, make sure the bandage is not so tight as to cut off circulation; and raise the arm or leg above the level of the patient's heart. (But if the arm or leg appears broken, be sure to splint it first.)

3. Treat the patient for shock.

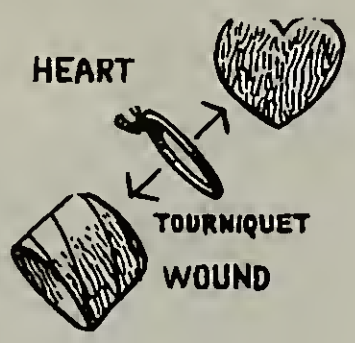
4. If blood soaks through the dressing, do *not* remove the dressing. Apply more dressings.

5. SPECIAL ADVICE ON TOURNIQUETS: Never use a tourniquet unless you cannot stop excessive, life-threatening bleeding by any other method. Using a tourniquet increases the chances that the arm or leg will have to be amputated later. If you are *forced* to use a tourniquet to keep the patient from bleeding to death (for example, when a hand or foot has been accidentally cut off), follow these instructions carefully:

— Place the tourniquet *as close to the wound as possible*, between the wound and the patient's heart.

— After the tourniquet has been applied, do not permit it to be loosened (even temporarily, or even though the bleeding has stopped) by anyone except a physician, who can control the bleeding by other methods and replace the blood that the patient has lost.

— Get a physician to treat the patient as soon as possible.



Preventing and Treating Shock

Being "in shock" means that a person's circulatory system is *not* working properly, and not enough blood is getting to the vital centers of his brain and spinal cord.

These are the symptoms of shock: The patient's pulse is weak or rapid, or he may have no pulse that you can find. His skin may be pale or blue, cold, or moist. His breathing may be shallow or irregular. He may have chills. He may be thirsty. He may get sick at his stomach and vomit.

A person can be "in shock" whether he is conscious or unconscious.

Important: All seriously injured persons should be treated for shock, even though they appear normal and alert. Shock may cause death if not treated promptly, even though the injuries which brought on shock might not be serious enough to cause death. In fact, persons may go into shock without having any physical injuries.

Here is how to treat any person who may be in shock:

1. Keep him lying down and keep him from chilling, but do *not* apply a hot water bottle or other heat to his body. Also loosen his clothing.

2. Keep his head a little lower than his legs and hips. But if he has a head or chest injury, or has difficulty in breathing, keep his head and shoulders slightly higher than the rest of his body.

3. Encourage him to drink fluids if he is conscious and not nauseated, and if he does not have abdominal injuries. Every 15 minutes give him a half-glass of this solution until he no longer wants it: One teaspoonful of salt and a half-teaspoonful of baking soda to one quart of water.

4. Do *not* give him alcohol.

Broken Bones

Any break in a bone is called a fracture. If you think a person may have a fracture, treat it as though it were one. Otherwise, you may cause further injury. For example, if an arm or leg is injured and bleeding, splint it as well as bandage it.

With any fracture, first look for bleeding and control it. Keep the patient comfortably warm and quiet, preferably lying down. If you have an ice bag, apply it to the fracture to ease the pain. Do not move the patient (unless his life is in danger where he is) without first applying a splint or otherwise immobilizing the bone that may be fractured. Treat the patient for shock.

A FRACTURED ARM OR LEG should be straightened out as much as possible, preferably by having 2 persons gently stretch it into a normal position. Then it should be "splinted"—that is, fastened to a board or something else, to prevent motion and keep the ends of the broken bone together. As a splint, use a board, a trimmed branch from a tree, a broomstick, an umbrella, a roll of newspapers, or anything else rigid enough to keep the arm or leg straight. Fasten the arm or leg to the splint with bandages, strips of cloth, handkerchiefs, neckties, or belts. After splinting, keep the injured arm or leg a little higher than the rest of the patient's body. From time-to-time, make sure that the splint is not too tight, since the arm or leg may swell, and the blood circulation might be shut off. If the broken bone is sticking out through the skin but the exposed part of it is clean, allow it to slip back

naturally under the skin (but don't push it in) when the limb is being straightened. However, if the exposed part of the bone is dirty, cover it with a clean cloth and bandage the wound to stop the bleeding. Then splint the arm or leg without trying to straighten it out, and try to find a doctor or nurse to treat the patient.

A FRACTURED COLLARBONE should also be prevented from moving, until the patient can get professional medical attention. It can be immobilized by placing the arm on that side in a sling and then binding the arm close to the body.

A FRACTURED RIB should be suspected if the patient has received a chest injury or if he has pain when he moves his chest, breathes, or coughs. Strap the injured side of his chest with 2-inch adhesive tape if available, or with a cloth bandage or towel wrapped around and around his entire chest.

Fractured bones in the NECK OR BACK are very serious, because they may injure the patient's spinal cord and paralyze him or even kill him. He should not be moved until a doctor comes (or a person trained in first aid), unless it is absolutely necessary to move him to prevent further injury. If a person with a back injury has to be moved, he should be placed gently on his back on a stiff board, door or stretcher. His head, back, and legs should be kept in a straight line at all times.

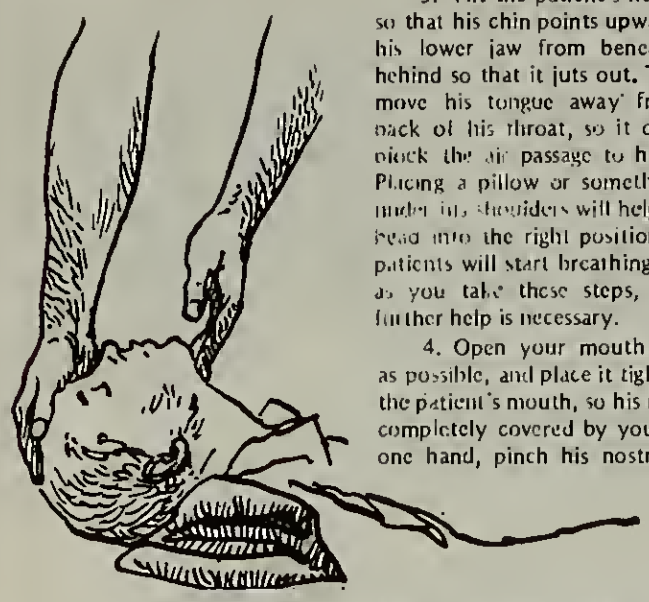
A person with a neck injury should be moved gently with his head, neck and shoulders kept in the same position they were when he was found. His neck should not be allowed to bend when he is being moved.

If the Patient Has Stopped Breathing

Quick action is required. You must get air into his lungs again immediately or he may die. The best and simplest way of doing this is to use mouth-to-mouth artificial respiration. Here is how to do it.

1. Place the patient on his back. Loosen his collar.

2. Open his mouth and use your fingers to remove any food or foreign matter. If he has false teeth or removable dental bridges, take them out.



3. Tilt the patient's head back so that his chin points upward. Lift his lower jaw from beneath and behind so that it juts out. This will move his tongue away from the back of his throat, so it does not block the air passage to his lungs. Placing a pillow or something else under his shoulders will help get his head into the right position. Some patients will start breathing as soon as you take these steps, and no further help is necessary.

4. Open your mouth as wide as possible, and place it tightly over the patient's mouth, so his mouth is completely covered by yours. With one hand, pinch his nostrils shut.

With your other hand, hold his lower jaw in a thrust-forward position and keep his head tilted back. With a baby or small child, place your mouth over both his nose and mouth, making a tight seal.

5. Blow a good lungful of air into an adult patient's mouth, continuing to keep his head tilted back and his jaw jutting out so that the air passage is kept open. (Air can be blown through an unconscious person's teeth, even though they may be clenched tightly together.) Watch his chest as you blow. When you see his chest rise, you will know that you are getting air into his lungs.

6. Remove your mouth from the patient's mouth, and listen for him to breath out the air you breathed into him. You also may feel his breath on your cheek and see his chest sink as he exhales.

7. Continue your breathing for the patient. If he is an adult, blow a good breath into his mouth every 5 seconds, or 12 times a minute, and listen for him to breath it back out again. *Caution:* If the patient is an infant or small child, blow *small puffs* of air into him about 20 times a minute. You may rupture his lung if you blow in too much air at one time. Watch his chest rise to make sure you are giving him the right amount of air with each puff.

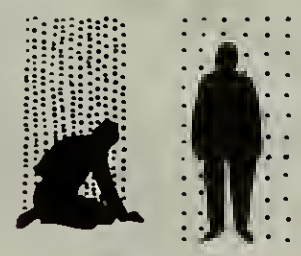
8. If you are *not* getting air into the patient's lungs, or if he is not breathing out the air you blew into him, first make sure that his head is tilted back and his jaw is jutting out in the proper position. Then use your fingers to make sure nothing in his mouth or throat is obstructing the air passage to his lungs. If this does not help, then turn him on his side and strike him sharply with the palm of your hand several times between his shoulder blades. This should dislodge any obstruction in the air passage. Then place him again on his back, with his head tilted back and his jaw jutting out, and resume blowing air into his mouth. If this doesn't work, try closing his mouth and blowing air through his nose into his lungs.

9. If you wish to avoid placing your mouth directly on the patient's face, you may hold a cloth (hankerchief, gauze, or other porous material) over his mouth and breath through the cloth. But don't waste precious time looking for a cloth if you don't have one.

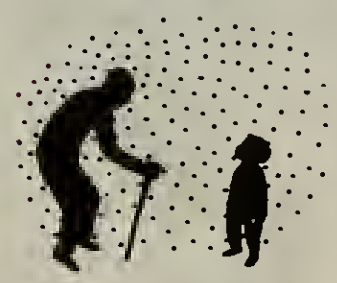
10. *Important*: Even if the patient does not respond, continue your efforts for 1 hour or longer, or until you are completely sure he is dead. If possible, have this confirmed by at least one other person.

Fallout Causes Radiation Sickness

The invisible gamma rays given off by fallout particles can cause radiation sickness that is, illness caused by physical and chemical changes in the cells of the body. If a person receives a large dose of radiation, he will die. But if he receives only a small or medium dose, his body will repair itself and he will get well. The same dose received over a short period of time is more damaging than if it is received over a longer period. Usually, the effects of a given dose of radiation are more severe in very young and very old persons, and those not in good health.



Short-Term Effects of Radiation Exposure



Following are estimated short-term effects on humans of external exposure to gamma radiation from fallout during a period of *less than 1 week*. The total exposure is given in terms of Roentgens (R), a unit for measuring the amount of radiation exposure

0- 50R — No visible effects.

50-200R — Brief periods of nausea on day of exposure. 50% may experience radiation sickness (nausea); 5% may require medical attention; no deaths expected.

200-450R — Most will require medical attention because of serious radiation sickness. 50% deaths within two to four weeks.

450-600R — Serious radiation sickness; all require medical attention. Death for more than 50% within one to three weeks.

Over 600R — Severe radiation sickness. 100% deaths in two weeks.

No special clothing can protect people against gamma radiation, and no special drugs or chemicals can prevent large doses of radiation from causing damage to the cells of the body. However, antibiotics and other medicines are helpful in treating infections that sometimes follow excessive exposure to radiation (which weakens the body's ability to fight infections).

Almost all of the radiation that people would absorb from fallout particles would come from particles *outside* their own bodies. Only simple precautions would be necessary to avoid swallowing the particles, and because of their size (like grains of sand) it would be practically impossible to inhale them.

People exposed to fallout radiation do *not* become radioactive and thereby dangerous to other people. Radiation sickness is not contagious or infectious, and one person cannot "catch it" from another person.

Protection is Possible

People can protect themselves against fallout radiation, and have a good chance of surviving it, by staying inside a fallout shelter. In most cases, the fallout radiation level outside the shelter would decrease rapidly enough to permit people to leave the shelter within a few days.

Even in communities that receive heavy accumulations of fallout particles, people soon might be able to leave shelter for a few minutes or a few hours at a time in order to perform emergency tasks. In most places, it is unlikely that full-time shelter occupancy would be required for more than a week or two.

Information from trained radiological monitors, using special instruments to detect and measure the intensity of fallout radiation, would be used to advise people when it is safe to leave shelter.

These are preliminary instruotions only. Detailed plans and instructions will be made at a later data. Until then, you should know your hosting community; that is, the community to whioh you may be relocated should the Crisis Relocation option be sctivated. This plan has been prepared by the Masaachusetts Civil Defense Agency in accordance with a contract funded by the Federal Emergenoy Management Agency.

TYNGSBOROUGH

Route 3 to Everett Turnpike to 89 to 9 to Hillsboro, N. H.

AYER

Route 110 to 93 to 25 to Haverhill, New Hampshire

CARLISLE

Route 225 to 128 to 93 to 25 to Haverhill, N. H.

CHELMSFORD

Route 495 to 93 to 89 to 103 to Claremont, N. H.

DRACUT

Route 113 to 93 to 89 to 103 to Claremont, N. H.

LOWELL

Route 110 to 93 to 89 to 103 to Claremont, N. H.

TEWKSBURY

Route 16 to 93 to 89 to 103 to Claremont, N. H.

WILMINGTON

Route 129 to 93 to 89 to 103 to Claremont, N. H.

BILLERICA

Route 129 to 38 to 495 to 93 to Littleton, N. H.

ACTON

Route 2 to 202 to 68 to 32 into Keene, N. H.

BOXBOROUGH

Route 2 to 202 to 68 to 32 into Keene, N. H.

HARVARD

Route 2 to 202 to 68 to 32 into Keene, N. H.

SHIRLEY

Route 2 to 202 to 68 to 32 into Keene, N. H.

DUNSTABLE

Route 113 to 119 to 124 to Jaffrey, New Hampshire

GROTON

Route 119 to 124 to Jaffrey, N. H.

LITTLETON

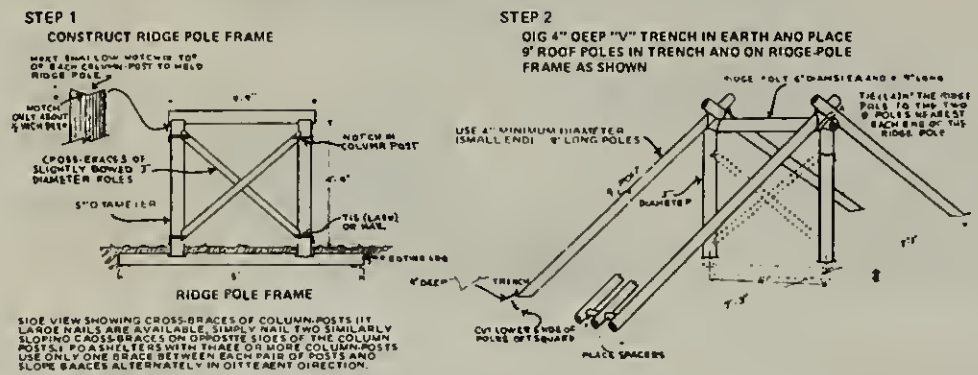
Route 110 to 119 to 124 to Jaffrey, New Hampshire

PEPPERELL

Route 113 to 119 to 124 to Jaffrey, New Hampshire

EXPEDIENT FALLOUT SHELTER

ABOVE—GROUND RIDGE—POLE


STEP 1
CONSTRUCT RIDGE POLE FRAME
STEP 2
DIG 4" DEEP "V" TRENCH IN EARTH AND PLACE 9' ROOF POLES IN TRENCH AND ON RIDGE-POLE FRAME AS SHOWN
RIDGE POLE FRAME
CROSS-BRACES OF SLIGHTLY BOWED 3" DIAMETER POLES
NOTCH IN COLUMN POST
TIE (LASH) OR NAIL
USE 4" MINIMUM DIAMETER (SMALL END) 9' LONG POLES
TRENCH
CUT LOWER ENDS OF POLES OFF SQUARE
PLACE SPACERS

SIDE VIEW SHOWING CROSS-BRACES OF COLUMN-POSTS (IF LARGE NAILS ARE AVAILABLE, SIMPLY NAIL TWO SIMILARLY SLOPING CROSS-BRACES ON OPPOSITE SIDES OF THE COLUMN POSTS.) FOR SHELTERS WITH THREE OR MORE COLUMN-POSTS USE ONLY ONE BRACE BETWEEN EACH PAIR OF POSTS AND SLOPE BRACES ALTERNATELY IN OPPOSITE DIRECTION.

TOOLS AND MATERIALS

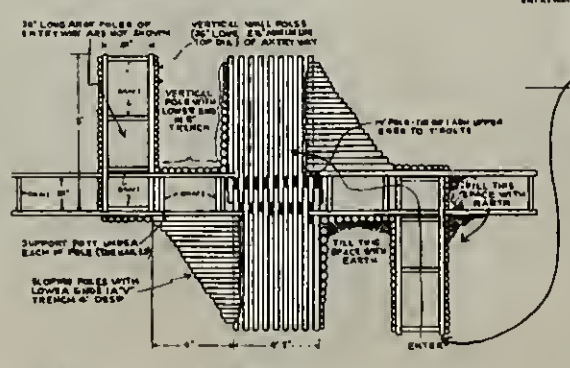
1. SAW TO CUT GREEN POLES (BOW OR CROSSCUT SAW PREFERRED) AND AN AXE.
2. SHOVEL (ONE SHOVEL FOR EACH TWO WORKERS).
3. LARGE BUCKETS, CANS, OR POTS WITH BAIL HANDLES TO CARRY EARTH.
4. KNIFE.
5. THREE DOUBLE BED SHEETS FOR THE ILLUSTRATED 8-PERSON SHELTER, OR AN EQUIVALENT AREA OF EQUALLY STRONG FABRIC OR PLASTIC. ONE ADDITIONAL SHEET FOR EACH ADDITIONAL 2 OCCUPANTS. IF NOT AVAILABLE, USE STICKS AND SMALL POLES PLACED ACROSS THE 5'-7" SIDE POLES AND COVER WITH GRASS OR LEAVES, TO FILL IN THE SPACES BETWEEN THE POLES.
6. HAMMER AND AT LEAST 80 NAILS (2 IN. OR LONGER), OR AT LEAST 200 FT. OF ROPE OR STRONG WIRE, OR TWO ADDITIONAL BED SHEETS (OR OTHER FABRIC EQUALLY STRONG) FOR EACH PERSON TO BE SHELTERED, TO MAKE INTO FOOT-WIDE STRIPS TO SERVE AS "ROPE" WHEN TWISTED.
7. AT LEAST 3 SQUARE YARDS PER PERSON OF WATER-PROOFING MATERIAL (SHOWER CURTAINS, PLASTIC TABLE CLOTHS, PLASTIC MATTRESS COVERS, ETC.) ESSENTIAL IN RAINY COLD WEATHER.
8. GLOVES TO PREVENT INJURY AND BLISTERS TO HANDS

GENERAL INFORMATION

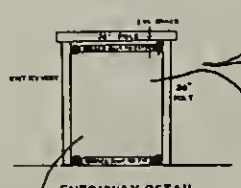
THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS AN ABUNDANCE OF SMALL TREES AND BELOW-GROUND SHELTERS ARE IMPRACTICAL. THE SHELTER IS PERSONAL CAPACITY) CAN BE BUILT BY 5 PEOPLE WORKING A TOTAL OF 27 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING.

5-PERSON SHELTER IS ILLUSTRATED - FOR EACH PERSON ABOVE 5, MAKE ROOF POLE 3 FT. LONGER; FOR 6 TO 8 PERSONS, USE 3 COLUMN POSTS - 10 to 14 PERSONS, USE 4 COLUMNS.

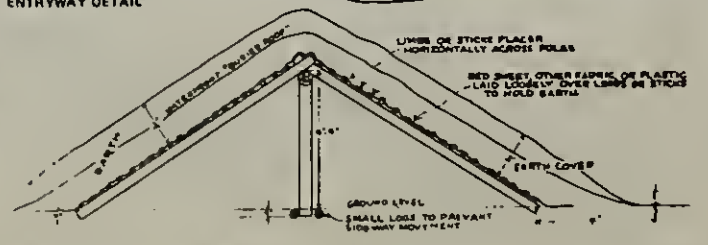
STEP 3
CONSTRUCT ENTRYWAYS


VERTICAL WALL POLES
VERTICAL POLE WITH LOWER END IN 6" TRENCH
FILL THIS SPACE WITH EARTH
SUPPORT POST, UNDER EACH OF POLE (SEE BELOW)
SLOPING POLES WITH LOWER ENDS IN "V" TRENCH 4" DEEP
ENTER

VIEW LOOKING DOWN ON SHELTER WITH ALL POLES IN PLACE EXCEPT THE ROOF POLES OF THE TWO ENTRYWAYS.



STEP 4
PLACE LIMBS OR STICKS AND BEDSHEETS ACROSS ROOF POLES. PLACE EARTH FILL AND WATERPROOFING MATERIALS AS ILLUSTRATED.


LIMBS OR STICKS PLACED HORIZONTALLY ACROSS POLES
BED SHEET, OTHER FABRIC, OR PLASTIC LAID LOOSELY OVER LIMBS OR STICKS TO HOLD EARTH
EARTH COVER
GROUND LEVEL
SMALL LOGS TO PREVENT SIDEWAY MOVEMENT

SECTION THRU COMPLETED SHELTER

WESTFORD

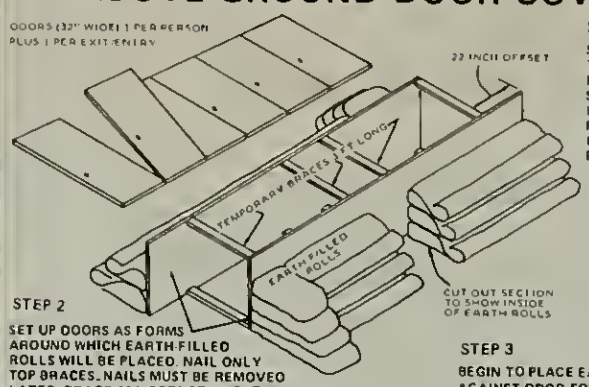
Route 495 to 3 to Everett Turnpike to 93 to Plymouth, N. H.

Cut out the marker designating your destination and attach it to your windshield with tape or glue.

CL CLAREMONT, N.H.	**HA** HAVERHILL, N.H.	**HI** HILLSBORO, N.H.
JA JAFFFREY, N.H.	**KE** KEENE, N.H.	**LI** LITTLETON, N.H.
PL PLYMOUTH, N.H.		

EXPEDIENT FALLOUT SHELTER

ABOVE-GROUND DOOR-COVERED SHELTER


DOORS (32" WIDE) 1 PER PERSON PLUS 1 PER EXIT/ENTRY
22 INCH OFFSET
TEMPORARY BRACES 2 FT LONG
EARTH-FILLED ROLLS
CUT OUT SECTION TO SHOW INSIDE OF EARTH ROLLS

STEP 1

SELECT A SHELTER LOCATION WHERE THERE IS LITTLE OR NO CHANCE OF RAINWATER PONDING ON THE GROUND SURFACE. STAKE OUT SHELTER, REMOVE DOOR KNOBS. ALLOW 1 DOOR FOR EACH PERSON PLUS 1 DOOR FOR EACH ENTRY/EXIT AT BOTH ENDS. LIMIT IS 8 PERSONS PER SHELTER.

STEP 2

SET UP DOORS AS FORMS AROUND WHICH EARTH-FILLED ROLLS WILL BE PLACED. NAIL ONLY TOP BRACES. NAILS MUST BE REMOVED LATER. BRACE ALL CORNERS, CENTER, TOP AND BOTTOM OF EACH DOOR.

STEP 3

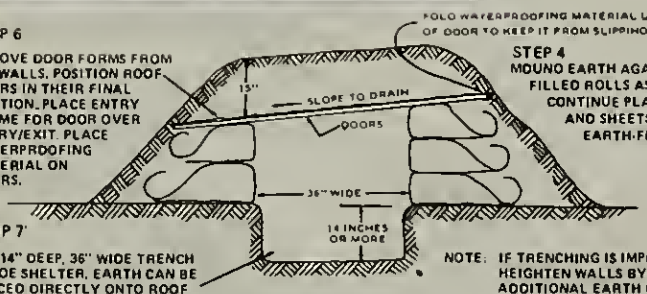
BEGIN TO PLACE EARTH-FILLED ROLLS AGAINST DOOR FORMS. TO FORM EARTH ROLLS, SEE EARTH-FILLED ROLL DETAIL BOTTOM OF PAGE.

STEP 5

KEEP HEIGHT OF EARTH ABOUT EQUAL ON BOTH SIDEWALLS AS ROLLS ARE FORMED. AFTER SIDEWALLS HAVE REACHED PLANNED HEIGHT, REMOVE BRACES AND DOOR FORMS. USE SAME DOOR FORMS TO CONSTRUCT ENDWALLS WITH EARTH FILLED ROLLS. PROVIDE EXIT/ENTRY AT BOTH ENDS AS SHOWN.

STEP 6

REMOVE DOOR FORMS FROM ENDWALLS. POSITION ROOF DOORS IN THEIR FINAL POSITION. PLACE ENTRY FRAME FOR DOOR OVER ENTRY/EXIT. PLACE WATERPROOFING MATERIAL ON DOORS.


FOLD WATERPROOFING MATERIAL UNDER HIGHER EDGE OF DOOR TO KEEP IT FROM SLIPPING.
13"
SLOPE TO DRAIN
DOORS
36" WIDE
14 INCHES OR MORE

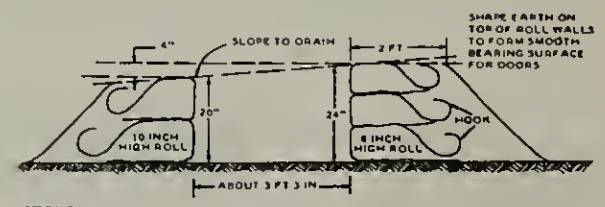
STEP 4

MOUND EARTH AGAINST THE EARTH-FILLED ROLLS AS SHOWN. CONTINUE PLACING EARTH AND SHEETS TO FORM EARTH-FILLED ROLLS.

STEP 7

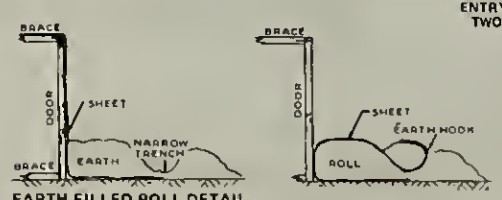
DIG 14" DEEP, 36" WIDE TRENCH INSIDE SHELTER. EARTH CAN BE PLACED DIRECTLY ONTO ROOF DOORS. TRENCH CAN BE MADE UP TO 3 FEET DEEP IF CONDITIONS PERMIT.

NOTE: IF TRENCHING IS IMPRACTICAL HEIGHTEN WALLS BY USING ADDITIONAL EARTH ROLLS.

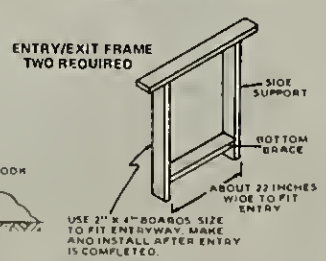


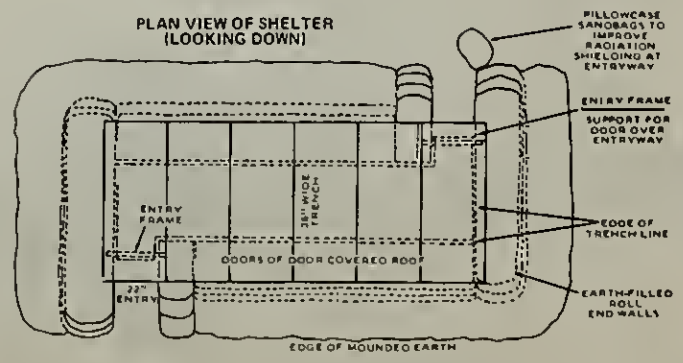
STEP 8

PLACE 15 INCHES OF EARTH ON TOP OF SHELTER. IN HOT WEATHER CONSTRUCT A SHELTER VENTILATION AIR PUMP. SEE AIR PUMP DETAILS ON LAST PAGE.



EARTH-FILLED ROLL DETAIL


ENTRY/EXIT FRAME TWO REQUIRED
SIDE SUPPORT
BOTTOM BRACE
ABOUT 22 INCHES WIDE TO FIT ENTRY
USE 2" X 4" BOARDS. SIZE TO FIT ENTRYWAY. MAKE AND INSTALL AFTER ENTRY IS COMPLETED.

1. PLACE 2 FT OF SHEET ON GROUND AND TEMPORARILY DRAPE REMAINDER OF SHEET ON DOOR.
2. PLACE EARTH ON SHEET – SHAPE AS SHOWN.
3. FOLD SHEET OVER SHAPED EARTH.
4. PLACE EARTH ONTO SHEET AT NARROW TRENCH.
5. FOLD SHEET TO FORM EARTH HOOK. HOOK WILL ANCHOR SHEET.
6. REPEAT TO FORM NEXT EARTH-FILLED ROLL.

PLAN VIEW OF SHELTER (LOOKING DOWN)